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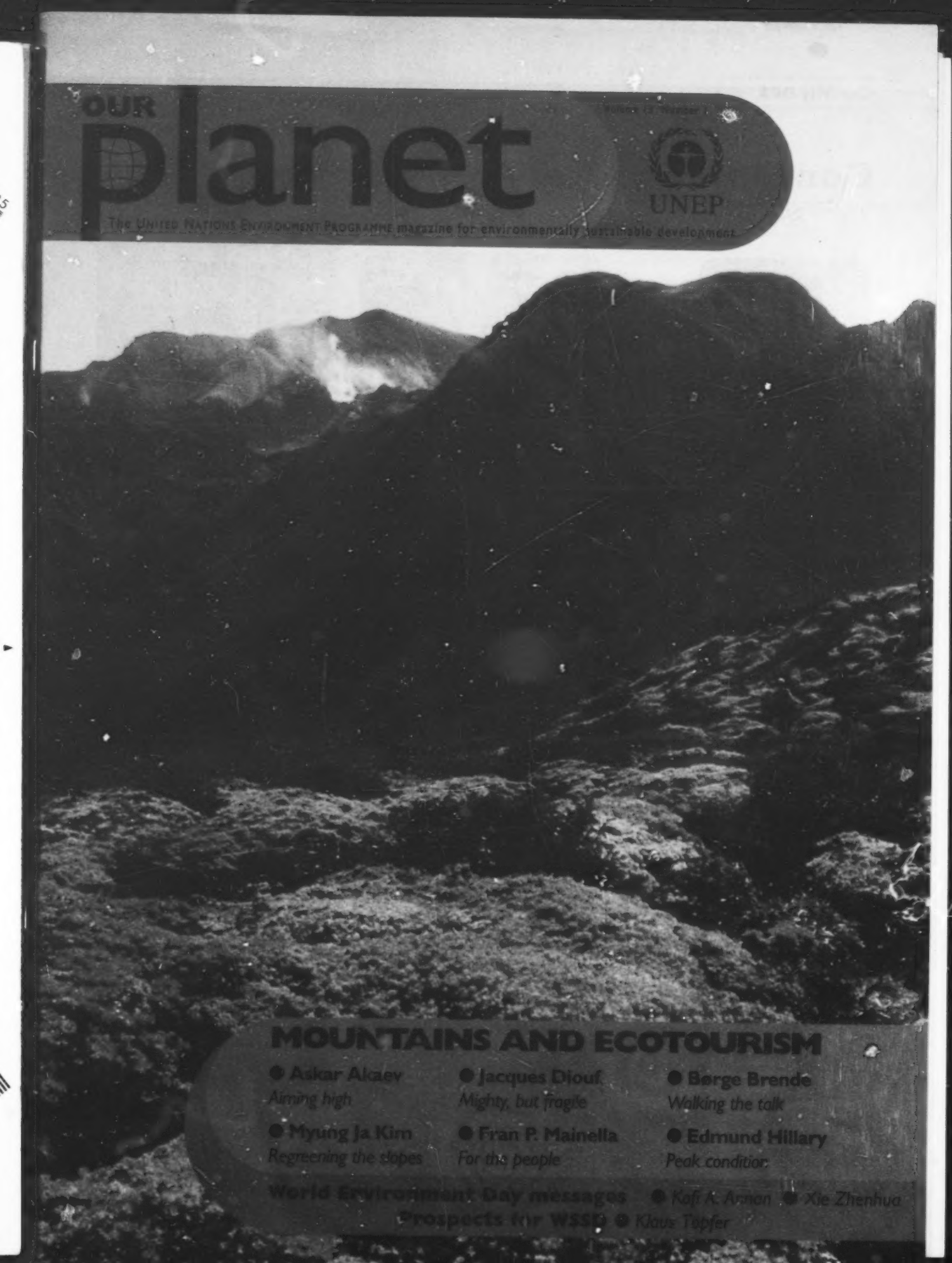
The United Nations Environment Programme magazine for environmentally sustainable development



MOUNTAINS AND ECOTOURISM

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The quotations used in the articles on Mountains and Ecotourism are drawn from *Mountain Voices*, the Oral Testimony Programme of the Panos Institute. Full details of interviews with mountain people can be found at: http://www.mountainvoices.org

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UNEP

Our Planet, the magazine of the United Nations Environment Programme (UNEP).
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e-mail: cpinfo@unep.org
www.unep.org

ISSN 1013-7394

UNEP Publisher/Director, UNEP Communication and Public Information: Tore J. Brevik
External Editor: Geoffrey Lean

A Banson production
Printed in the United Kingdom
Front cover: Takahashi Tadahisa/UNEP/Topham

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Change of address: please send your address label together with your new address to: Mani Kebede, Circulation Manager, *Our Planet*.

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Editorial

R. Wahba/UNEP

KLAUS TÖPFER
United Nations Under-Secretary General and Executive Director, UNEP

In this International Year of Mountains let me share with you the remarkable story of the native people of the Andes who, over 3,000 years, have evolved a unique method of farming that respects the environment and helps produce bumper yields.

The *waru-waru* – a system of terraces, canals and raised fields – may appear primitive in the eyes of the developed world. But it has allowed native people to produce potatoes and quinoa at high altitudes in the face of floods, droughts and severe frosts.

The canals, filled with water, allow moisture to percolate through to the fields. During floods they help drain off the excess water.

Water in the canals absorbs sunlight during the day, radiating it back into the raised fields at night to protect the crops from frost. The fields can be several degrees warmer at night than the surrounding area.

Meanwhile the system maintains soil fertility. Organic matter, silt and algae build up in the canals and are dug out as a fertilizer. Studies indicate that potatoes, grown in this traditional farming system, yield about 10 tonnes a hectare compared to the regional average of 1-4 tonnes.

This underscores how humankind not only can but has evolved a close relationship with nature and, more specifically, with the world's mountains, that benefits people and the environment.

Sadly this kind of harmony, this beacon of sustainable development, is becoming all too rare as the globalization of culture, and the excessive consumption patterns of the developed world, exterminate ancient cultures, languages, traditions, indigenous knowledge and life-styles.

Meanwhile insensitive mass tourism, urbanization and pollution are taking their toll. Nowhere is this seen more keenly than in the mountains.

Homes of the gods

Considered by many cultures to be the homes of the gods, these revered and inspirational summits were considered unchanging and impregnable. But we are fast learning that they can be as fragile as the oceans, forests and lowlands.

In the Himalayas, rising temperatures linked with global warming and the burning of fossil fuels are melting the glaciers so rapidly that catastrophic events are looming.

Studies by UNEP and scientists with the International Centre for Integrated Mountain Development have pinpointed nearly 50 glacial lakes in Nepal and Bhutan that are filling so fast with water that they could burst their banks in as little as five years, sending millions of gallons of floodwaters down the valleys. Properties, hydro-electric installations, roads, trekking trails and bridges are at risk – as well as lives.

This is an example of the early warning skills and science developed by UNEP and central to our work. But such assessments count for nought if governments, industry and the public at large fail to act on the findings both to protect those at risk and to tackle the root causes.

We abuse our mountains at our peril. They can react to human folly with awesome consequences. And unless they remain intact we risk droughts and water shortages; they are the water towers of the world from which spring the rivers and freshwaters upon which all human life depends.

World Environment Day

This edition of *Our Planet* marks World Environment Day, which this year is celebrated in the Chinese city of Shenzhen. Despite formidable economic development over the past few decades, the city has proved a model of environmental stewardship in curbing pollution and managing the urban land in eco-friendly ways.

Cities like this have helped China to deliver economic growth without a matched increase in emissions of greenhouse gases.

So we are delighted to be in China and to learn at first hand how its people are striving towards the goal of sustainable development which will be at the heart of the World Summit on Sustainable Development taking place in Johannesburg in September.

Ten years after the Rio Earth Summit we must take stock and chart a new course for planet Earth that respects people of all cultures and faiths, that respects the environment from the summits to the seas.

The time has come to make Rio's promise a reality so that we can again look to the mountains with awe and reverence rather than fear and trepidation ■

This issue of ***Our Planet*** *includes the participation of Aveda, the global cosmetics company, which has integrated environmental responsibility into its business and recently generously gave $500,000 to a UNEP-supported project linking conservation and tourism in some of the world's most beautiful, yet fragile environments.*

Susan Zheng/UNEP/Topham

Jack D. Ives

SAVING THE COMMON LAND

XIE ZHENHUA

The Earth is the cradle of life and the common homeland of humankind. A comprehensive survey into 4.6 billion years of the Earth's evolution indicates that approximately 10,000 years were spent in the agricultural era and 200 years in the industrial revolution. In this course a splendid civilization and society have been created. However, incessant exploitation by human beings has left Mother Earth ravaged. A number of problems including environmental pollution, ecological destruction, population expansion, resource shortage and environmental deterioration, increasingly put human survival and development at risk. These problems all force us to review and ponder the path that human beings have taken.

The first United Nations Conference on the Human Environment was held on 5 June 1972, marking the beginning of the pursuit of integrating environmental and economic development after a long period of exploitation. The United Nations Conference on Environment and Development was convened in 1992, and the strategy of sustainable development was thus recognized and universally accepted. Since then, a consensus has been developed amongst international communities to preserve the environment, care for the Earth and undertake sustainable development.

Our hope is to leave a beautiful world to our future generations

Safeguarding the Earth

In the course of long human history, 30 years are merely the twinkling of an eye. However, during the past three decades, human society has made unremitting efforts to save our ailing homeland. Though there are differences and debates on approaches to environmental protection, the joint effort of all nations to address the environmental crisis and safeguard the Earth has become an immense historical trend.

It is a tradition of Chinese people to love nature, treasure the environment, focus on human needs, and pursue harmonization between humans and nature. Through 30 years of efforts in China, environmental protection has become the basic state policy – and environmental awareness has been dramatically raised. The strategy of sustainable development has become a guideline for all levels of government in China in directing social and economic development, and it has also been effectively translated into practice.

Meeting the challenge

As a developing country with a large population and relatively scarce resources, China is severely challenged in facing environmental protection. However, the Government of China has not only been devoted to addressing domestic environmental problems, but also actively involved in global environmental cooperation.

This year is the International Year of Mountains; the international celebration for World Environment Day 2002 will be held in the City of Shenzhen of Guangdong Province, China. Is it not a great pleasure to have friends from afar? We will be more than happy to receive and give hospitality to all the distinguished guests present. Taking advantage of the occasion, we will be glad to exchange views, discuss plans for environmental protection, and promote the cause of environment and development with all our colleagues. It is certainly our hope to leave a beautiful world with bluer skies, greener mountains, and cleaner water to our future generations. May Mother Earth be full of vitality ■

Xie Zhenhua is Minister of the State Environmental Protection Administration of China.

AIMING HIGH

ASKAR AKAEV hopes that recognition of mountains as a source of progress for civilization will lead to a rational development policy for mountain regions

The mountains of the Republic of Kyrgyzstan are an integral part of the global life support system. Craggy, snow-capped peaks, rugged mountainsides, gushing torrents and the fragility of the plant cover are all characteristics of mountainous areas. Mountains never fail to fascinate us with their sheer mass, their exoticism, the range of climatic zones, their unique flora and fauna and the pure waters of mountain lakes.

At the same time, this type of terrain is particularly vulnerable. Natural disasters, deterioration of the environment and impoverished populations are all negative aspects of fragile mountain ecosystems.

The quality of life of mountain communities contrasts sharply with living conditions in other parts of the globe. Mountain-dwellers live in harsh, sometimes extreme circumstances. Their existence is a constant struggle against the forces of nature, and this influences their character, outlook, culture and philosophy of life. Yet mountain communities have a uniqueness, a culture and customs that enable them to adapt to complex climatic and geographical conditions.

Joint efforts

In the international arena, Kyrgyzstan advocates the need for the sustainable use of mountain resources and sustainable mountain development, notably through cooperation with international organizations such as the Food and Agriculture Organization of the United Nations (FAO), UNEP, UNESCO and others, as well as with Switzerland. This includes setting up a network to pool our efforts and collaborate in developing new initiatives through innovative strategies and the practical implementation of various projects and scientific research.

In the third millennium, humanity will be increasingly reliant on mountain resources such as water, biodiversity and recreational facilities. There must therefore be a sea change in the consumerist attitude towards the world's greatest ecosystem because increased accessibility to mountains and their harnessing for economic purposes is leading to a growing threat of declining resources.

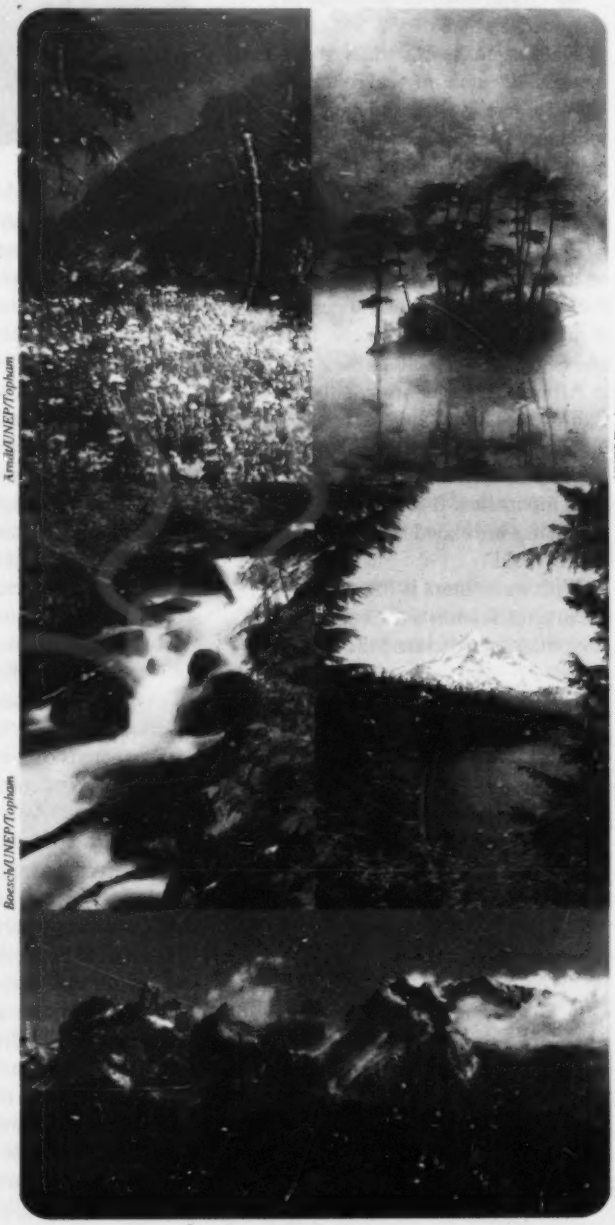
Mountain regions, as a life-support system for humans today, are a source of progress for civilization. The international community must be made aware of the change in society's view of mountains and the need to dispel stereotypes and lay the foundations of a rational policy for the development of mountain areas: one of economic partnership, respect for national traditions and an understanding of the global importance of mountains.

I am convinced that the journal *Our Planet* will promote a better understanding of every aspect of environmental issues worldwide, and I do hope that it will draw the attention both of individuals and organizations to mountain concerns. In so doing it will be making an invaluable contribution to a *rapprochement* between states responsible for the livelihoods of a hugely diverse number of mountain communities, and to helping find solutions to their problems ■

Dr. Askar Akaev is President of the Republic of Kyrgyzstan.

'... nature can defend itself up to a certain point, but when it is crossed – it can't anymore'

Krzysztof, Mountain Voices



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MIGHTY, BUT FRAGILE

JACQUES DIOUF outlines the importance of mountains and describes what the international commu..ity is doing to protect them

UNEP/Topham

The world's mountains are far more important to life on Earth than many of us previously imagined. In fact, they are as alive as the oceans and as important to our well-being as lowland tropical rainforests. Home to one in ten people and a sanctuary for an extraordinary web of plant and animal life, mountains are also the source of water for all of the world's major rivers.

Each day, one of every two people on the planet quenches his or her thirst with water that originates from mountains. A billion Chinese, Indians and Bangladeshis, 250 million people in Africa, and the entire population of California, United States, are among the 3 billion people who rely on the continuous flow of fresh, clean water from mountains. It is not surprising that mountains are called 'the water towers of the world'.

With water there is life. And in mountains, scientists are only just beginning to understand the scope and variety of that life. Mountain biodiversity is among the highest of all ecoregions in the world, including tropical rainforests, because of the extraordinary range of elevations and climates in vertical environments. Of the 20 plant species that supply 80 per cent of the world's food, for example, six originated in mountains. Among them, the potato first appeared in the Peruvian Andes, corn in the Sierra of Mexico and sorghum in the Ethiopian highlands. The very remoteness of mountain landscapes protects many crop varieties from depletion and extinction. In the Andes, for example, as many as 200 different varieties of indigenous potatoes exist. In Nepal, approximately 2,000 varieties of rice can be found. And in the Mexican Sierra de Manantlán, the only known stands of the most primitive wild relative of corn grow undisturbed.

Grimaldo Rengifo/UNEP/Topham

Widespread degradation

But as diverse as mountain ecosystems might be, they are also exceedingly fragile. In many parts of the world, climate change, pollution, exploitative mining, unsustainable agriculture and tourism are all taking a toll on mountain environments, leading to widespread degradation and an increased risk of calamities such as floods, landslides, avalanches and famine.

Mountain people – the guardians of these valuable mountain resources – are the most vulnerable to these changes. Already, they are among the world's poorest, hungriest and most marginalized populations. It is a sobering fact that many of the more than 800 million chronically undernourished people live in mountain areas. In some cases, their food insecurity is a consequence of population growth. In others, periods of hunger arise as mountain farmers abandon traditional farming practices for methods that are unsustainable on fragile mountain terrain.

Conflict and war

However, one of the greatest causes of hunger in mountain regions is the chaos created by conflict and war. In 1999, 23 of the 27 major armed conflicts in the world were being fought in mountain regions. Where there is armed conflict, people cannot carry out fundamental life-sustaining tasks, such as planting and harvesting crops. Often, what little food exists is claimed by soldiers or those who dominate the conflict. In some cases, agricultural lands may be seeded with land mines, making the recovery from war a prolonged fight for survival.

The number of hungry and undernourished in the world could be dramatically reduced if we all worked to promote peace and stability in mountain regions. By taking concerted action now to alleviate food insecurity in mountain regions, we can make a

UNEP/Topham

'...now we cultivate crops three times a year because we have more facilities, such as irrigation'

Ram, Mountain Voices

significant contribution towards meeting the 1996 World Food Summit goal of reducing by half the numbers of hungry in the world by 2015.

The United Nations declared 2002 as the International Year of Mountains in recognition of the crucial role that mountains play in all our lives. This Year is an unprecedented opportunity for all – individually, nationally and internationally – to work to safeguard mountain ecosystems and help mountain people achieve their goals and aspirations.

Coordinating role

The Food and Agriculture Organization of the United Nations (FAO) has a long history of working in sustainable mountain development, so it is fitting that FAO was asked to be the United Nations' lead coordinating agency for the International Year of Mountains. This complements FAO's existing responsibility as task manager of Chapter 13 of Agenda 21, the global blueprint for sustainable development that evolved from the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992. In collaboration with national governments, United Nations agencies and non-governmental organizations (NGOs), FAO is convening an Inter-agency Group on Mountains that is applying a wide range of capabilities to solving problems in mountain regions. It is implementing a global communications programme to raise awareness of the importance of mountain ecosystems and the need to improve the well-being of mountain people. FAO is also supporting the establishment and development of national committees that are leading country-level observance of the International Year of Mountains.

National committees are the primary catalysts for change in mountain areas. They have the power to develop and implement sustainable development strategies and to create mountain-friendly policies and laws tailored to their countries' needs, priorities and conditions. Already, more than 50 countries around the world have established a national committee. Many have members from government, civil society, NGOs and the private sector. These committees are approaching mountain development issues from a holistic, long-term perspective – often for the first time – and together are mobilizing support to implement programmes and projects. At FAO, we believe these national committees will play an integral role in mountain development now and in years to come.

Mountain environments require different approaches to development from those of lowland areas – a fact that is often overlooked by governments. They need mountain-specific policies and laws based on mountain-specific research and knowledge. Several promising global research programmes are already under way that will help countries build strategic plans for their mountain areas and develop mountain-friendly policies. Notable too is the Mountain Forum, a global network of people and organizations, which is helping to bridge the knowledge gap by enhancing research partnerships and providing channels for sharing information and perspectives across disciplines, geographic boundaries and cultures.

Many United Nations agencies and NGOs are also adapting their programmes to include mountain-specific aspects in their research activities. The Consultative Group on International Agricultural Research (CGIAR), for example, has launched a system-wide Global Mountain Programme, whose activities range from empowering mountain inhabitants through the use of new tools and methods to preserving indigenous knowledge for future generations.

Long-term needs

At FAO, we are ensuring that programmes respond to the long-term needs of mountain communities and foster the protection of mountain ecosystems. This on-going work encompasses watershed management, livestock production, women's role in development, food security, education, policy and many other issues crucial to mountain ecosystems and life.

Our future well-being and the health of the planet depend on mountains. Although the International Year of Mountains concludes at the end of 2002, our determination to protect mountain ecosystems and to improve the well-being of mountain people must continue for years to come ■

Dr. Jacques Diouf is Director-General of the Food and Agriculture Organization of the United Nations.

Barbra Clavey/UNEP/Topham

WALKING THE TALK

BØRGE BRENDE describes the importance of mountains for recreation and refreshment in his country, and the conflicts that can occur

If Finland is known as the 'land of a thousand lakes' Norway must be the 'land of a thousand mountains'. More than half Norway's area is above the timber line. More surprisingly, perhaps, 27 per cent of the land mass of planet Earth is situated more than 1,000 metres above sea level. The United Nations has now declared the year 2002 to be the International Year of Mountains, because the ecosystems in mountainous areas are vulnerable and need better protection.

The International Year of Mountains has been approved by 54 countries with mountainous areas. Agenda 21, the United Nations' plan of action for the environment, also deals with the management of vulnerable ecosystems and sustainable development in mountainous regions. One of its purposes is to develop and broaden our knowledge of mountain ecology and of how those areas should be managed and protected.

Agenda 21 will be thoroughly discussed at the World Summit on Sustainable Development in Johannesburg in September, where our approach to the problems it raises will be considered. This perspective makes the Year of Mountains especially interesting.

Of course, problems in mountainous regions vary strongly in different parts of the world. In Norway, maintaining the balance between utilization and protection is an important challenge. The resources of our mountainous areas are of considerable importance for grazing, hunting and fishing. The mountains also have vital significance for recreation. The Year will give us an opportunity to strengthen general understanding of the mountains – and not least of their special combination of nature and culture.

A walk may give many a pleasant adventure. But most people will agree that a walk in the mountains will give this adventure an entirely new dimension, thanks especially to the peace and quiet and wealth of species to be found there. Those who enjoy walking in them obviously understand their biodiversity and recognize mountains as a resource. Since the 1970s, there has been a marked increase in the numbers of visitors to the mountains in both summer and winter: the number of summer walkers has doubled since 1980.

The good life

A newly published scientific report on the environmental quality of life asked what was essential to the good life. The answer from 19 out of 20 Norwegians was 'nature'. An active outdoor life is good for both the individual and society, but people do not necessarily choose it for utilitarian reasons. Research shows that peace and quiet, and experiencing unspoiled nature, are the foremost reasons for choosing to walk in the mountains. Giving people these opportunities is one of the main challenges in the politics and management of

Danny Roch/UNEP/Topham

the outdoors in Norway. The Year will help to bring one of the growing environmental problems in mountain areas – motorized activities in outlying areas – into focus. Different participants have different motives and interests, and sometimes the conflicts between motorized activities on uncultivated land and other uses are quite emotional. Since peace and quiet are the most important reasons for walking in the mountains, there are real possibilities for confrontations with roaring snowmobiles. We must find a balance between those who legally drive motorized vehicles and those who use their legs. The Ministry of Environment has a clear responsibility in this matter and as Minister I am prepared to execute it.

UNEP/Topham

Protecting our national parks and other larger areas is an important part of Norway's effort to fulfil international obligations. In this way, we take care of nature's precious values and safeguard areas important for specific animal species that are our responsibility. Norway has many species particular to mountainous areas: Arctic fox, wild reindeer, wolverine, different birds of prey and lemmings – the little rodent so characteristic of the Scandinavian mountains. The mountain flora is also unique, with many rare and interesting species. One example is the fungus *Tolypocladium inflatum*, found at Hardangervidda, which is the basis for production of cyclosporin, a substance vital in transplants as it prevents rejection of tissue. Even a 'barren' mountainous landscape may contain organisms of the potential value to humankind that we usually associate with the biodiversity found in lush tropical rain forests.

Doubling up

Norway now has 19 national parks, most of which include large mountain areas with plains and alpine mountain mass. The Government plan for national parks aims to double their number. When it is finalized in 2010, 13-14 per cent of mainland Norway will be preserved, mostly by national parks and mountain areas.

Good information is required to engage the public and stimulate interest in national parks. There are ten centres in connection with major national parks, and they will play an active part in the Year.

The Norwegian Mountain Touring Association is in a class of its own. With 134 years of experience in the Norwegian mountains, it has increased its membership to nearly 200,000 in recent years – partly due to concentrating

'A mother cuts enough bread for her children's needs, and sees that some is left. The same must happen to forests'

Bronislaw, Mountain Voices

on children. Its size and traditions make it the most prominent outdoor and environmental protectionist association in the country. It is an important resource in Norwegian society, and will definitely be noticed in the International Year of Mountains.

Promoting debate

The Association's main goal is to bring 'everybody' into the mountains, and – together with other organizations and authorities – to raise the debate on conservation. Important questions are: the protection of mountain areas, biodiversity, sustainable use of wilderness resources, hunting and fishing, and passing on the Norwegian tradition of walking in the mountains to children and young people. Activities and events – like mountain dairy farming, youth festivals, international mountain conferences, walks and exhibitions – are being arranged.

If we are going to succeed with the Year, we need the commitment of different partners: mountain municipalities; organizations and associations which have a main interest in protecting our mountains; trade and business which rely upon them; and the thousands of individuals who gain happiness and inspiration by visiting our unique mountain areas. Together we can arrange for a deserving celebration of the International Year of Mountains in Norway ■

Børge Brende is Minister of the Environment, Norway.

REGREENING THE SLOPES

MYUNG JA KIM

describes how her country has reafforested one third of its mountains as a step towards global sustainability

UNEP/Topham

The year 2002 is both the International Year of Mountains and the International Year of Ecotourism. As such, it is expected that we will see an unfolding of copious discussions on the importance of mountains, which provide a vital lifeline to humans and wildlife.

Mountains constitute 66 per cent of the entire territory of the Republic of Korea. Beginning with the Japanese colonialism in the first half of the 20th century and the Korean War in 1950-1953, and on through the reconstruction period of the 1960s, huge parts of these mountains were devastated by excessive logging and reclamation. In 1973 the Government launched a long-term systematic tree-planting campaign to restore them. By 2000, it had turned 2 million hectares (31 per cent) of the total mountain surface into economically valuable forest tracts. Taking a step further, we initiated a Nature Recess Program for major mountains in 1991 in order to rehabilitate their ecosystems by limiting public access for a specified period of time.

Rehabilitation

Most recently, we succeeded in preserving one of our ecosystem treasure troves by nullifying the Young-Wol Dam construction plan for the Dong River in Gangwon Province. When studies revealed its long-term adverse impact on the environment, the President officially dismissed the proposed project on World Environment Day 2000. The Government followed up this action by designating the Dong River as a natural rehabilitation area. We now promote ecotourism in the area and reinvest the revenues generated from tourism into the surrounding cities, making local residents strongly committed to environmental preservation efforts and simultaneously raising their quality of life.

'If people work in groups it helps everybody, otherwise life is very hard'

Gaumati, Mountain Voices

Regionally, the Republic of Korea has been actively collaborating with China and Japan to revamp our ecosystems in the framework of the annual Tripartite Environment Ministers' Meeting, first convened in 1999. The three countries have been working on various projects, including the Ecological Conservation Project in Northwest China, to mitigate aggravating yellow sand phenomena. This year Seoul will host the International Congress of Ecology on the theme of Ecology in a Changing World from 11-18 August. Experts and scholars from around the world will be invited to discuss ways to address such grave ecological issues as forests and wetlands protection, biodiversity and climate change.

In a similar vein, we should endeavour to provide an opportunity for people to experience unique indigenous ecosystems, especially as we celebrate the International Year of Ecotourism. To this end, we need to take aggressive measures to raise environmental consciousness among our citizens and protect the fraying web of nature. It is my sincere hope that UNEP and other international organizations will take initiatives in motivating us to foster ecological viability and richness.

Implementation mechanisms for the objectives set forth at the Millennium Declaration should be promptly established if sustainable development is to be fully realized. In this spirit, the Government has been enforcing, among other things, a Volume-Based Waste Charging System since 1995. This has resulted in enormous reductions in waste and corresponding increases in recycling. I am positive that the proliferation of such policies on a global scale will prove helpful in bringing environmental sustainability closer to reality.

Gender perspective

The role of women is also a crucial component of sustainable development. At the Meeting of Women Leaders on the Environment this March in Helsinki, Finland, the participants called for partnership and information sharing between all stakeholders and stressed the need for incorporating a gender perspective in sustainable development discussions. To address these concerns, we agreed to establish a global network of women leaders to discuss and provide input on major environmental issues.

Finally, the conclusion of negotiations on the implementation mechanisms of the Kyoto Protocol in Marrakesh last November marked an auspicious beginning to international efforts to preserve the environment. I anticipate that future negotiations on the implementation tools of Agenda 21, and on trade and environment in the context of rapid globalization, will produce fruitful results. Only when these efforts are well integrated and put on the right track, can the 21st century realize sustainable development ■

Dr. Myung Ja Kim is Minister of the Environment, Republic of Korea.

A journey through Colorado's rustic landscape in the late 19th century was enough to inspire poet Katharine Lee Bates to write the now famous hymn, 'America the Beautiful'.

She was struck, as I and countless others have been, by the majesty of the Rocky Mountains' towering front range. From snow-mantled peaks, to forested slopes, to sun-kissed alpine wetlands, the beauty and ecological diversity of our mountains are crown jewels of America's natural heritage.

As the principal land management agency in the United States, the Department of the Interior is entrusted with protecting thousands of natural treasures from Hawaii to Maine, including 385 sites in the National Park System, dozens of wild and scenic rivers, more than 500 national wildlife refuges, and 2,000 other natural recreational areas.

Interior manages 183 million hectares of public lands, or more than 1 out of every 5 hectares in the United States, and records half a billion visits a year, creating economic engines for communities across the country. These lands contain spectacular biological and natural diversity, with examples of virtually every kind of ecosystem in North America. Eight of the ten most visited US National Parks contain mountain ecosystems.

FOR THE **PEOPLE**

FRAN P. MAINELLA describes how the United States manages its 'purple mountain majesties' for ecotourism, ecological conservation and sustainable development

As steward of this vast public domain, the Department is charged with preserving these lands for the enjoyment of people and for their ecological values. They play critical roles in sustaining natural systems, wildlife and local communities. Interior has more than a century of experience in making environmental stewardship compatible with economic vitality.

As we celebrate the International Year of Ecotourism and the International Year of Mountains, I would like to share a few observations about the United States' contributions to ecological conservation, nature tourism and sustainable development in mountain ecosystems.

Promoting conservation

In its broadest sense, ecotourism actively promotes the conservation of the Earth's unique biodiversity by developing tourism practices that protect land, water and wildlife. From this perspective, the concept of National Parks – of setting aside large natural areas to conserve them for future generations to visit and enjoy – was a major milestone in history.

The US National Park System emerged in response to growing support for protecting some of the natural beauty of the American West. In the mid-19th century, Henry David Thoreau, one of America's most fertile thinkers, spoke eloquently on the importance of America's wild and remote places. By the late 1860s, the 'transcendental' view of nature that Thoreau and his peers had popularized inspired a generation of conservationists who pushed for the protection of natural systems, leading to the establishment of Yellowstone.

The 1872 law establishing Yellowstone National Park 'for the benefit and enjoyment of the people' provided for the preservation of all timber, mineral deposits, natural ▸

US National Park Service

curiosities and wonders in the Park 'in their natural condition'. The world's first National Park, Yellowstone, contains a diversity of mountain ecosystems unmatched in the United States.

This historic legislation set in motion the primary National Park Service missions of resource preservation and recreational use – a dual mandate, requiring a balance of interests. By 1915, 35 parks had been established, including diverse mountain ecosystems such as Yosemite and Sequoia in California, and Mount Rainier in Washington. A large body of laws and regulations also evolved to provide the National Park Service with the necessary authorities to carry out its dual missions.

By the end of the 19th century, the American conservation movement had swelled into a crusade for the scientific management of all public lands and waters. The movement promulgated the concept that evolved a century later into what is now known as 'sustainable development' – the management of public lands to provide for the development of their timber, mineral, grazing and water resources, without damaging their ecological health.

The movement blossomed under President Theodore Roosevelt, a passionate outdoorsman and hunter who fervently believed in the conservation of our natural resources and the enjoyment of those resources. He put the weight of his presidency behind conserving public lands, waters and wildlife, establishing the National Wildlife Refuge System and the US Forest Service and designating 18 areas of public lands as parks and monuments.

Increasing pressures

Conserving these public lands while providing for visitors was easier in the 19th and early 20th centuries. With the growth of population and expansion of the US economy, however, pressures have increased correspondingly on America's undeveloped land, water resources and wildlife.

But Interior's major land management agencies – the National Park Service, US Fish and Wildlife Service, Bureau of Land Management, and Bureau of Reclamation – continue to meet the challenges of today's world. They are working with a wide circle of public and private partners and using science-based decision-making and the latest natural resource monitoring and analytical tools, including satellite imagery, Global Positioning Systems, Geographic Information Systems and Information Technology.

The US Geological Survey, the department's chief science agency, works with each of the land management bureaus to carry out a vast array of ecological studies that help Interior land managers fulfil their mission to preserve and protect the nation's natural heritage for future generations.

Several major initiatives to advance the conservation of natural resources on Interior lands are noteworthy. The National Park Service's Natural Resource Challenge, for example, is accelerating biological resource inventories, expanding scientific research through collaborative programmes, improving resource monitoring, and increasing the protection of wildlife and its habitat.

'Our forefathers looked after animals and fish... there wasn't any dynamite, they didn't pollute the rivers, but cared for their rivers and forests'

Cecilio, Mountain Voices

Interior land management agencies also carry out extensive research on the visitor capacity of parks, refuges and other natural areas to determine the number and type of visitors these sites can accommodate while maintaining the biological and natural integrity of the areas. Related projects gather information on the quality of visitor experiences in the parks.

The data gathered through natural resource research and related visitor research are integrated into strategic planning and guide managers as they develop operational plans for individual parks, refuges and recreational units and make critical decisions that can affect the future of these natural areas.

Interior managed lands that have special ecological characteristics are provided with special protection. Many are designated as wilderness areas, others as nature preserves. Typically, these areas are closed to vehicle traffic, and new road building and recreational activities on these landscapes are restricted to hiking, exploring, bird watching, nature photography and other pursuits that limit potential human impacts.

Recently, a number of the most rugged and remarkable landscapes in the American West, including many mountain ecosystems, have been placed in a National Landscape Conservation System. Managed by the Bureau of Land Management, this system ensures that the public can experience the solitude and splendour of these undeveloped lands and that future generations will be able to enjoy these great open spaces.

While these initiatives focus on the public lands under Interior's stewardship, our land managers no longer have

US National Park Service

Lee Weiss/UNEP/Topham

the luxury of focusing solely on conditions inside their respective parks. Public lands can no longer be successfully managed according to standardized boundary lines – without regard to watersheds, animal migration routes, vistas and other ecologically based concerns.

It is increasingly important, therefore, that the Department of the Interior enlist private landowners and local communities to work on projects that foster innovation and create incentives to restore and protect natural areas. Under President Bush's fiscal year 2002 budget, Interior is proposing a competitive programme that promotes citizen stewardship. Called the Cooperative Conservation Initiative, the programme will encourage cost-shared projects that vary from small-scale revegetation for erosion control to ecosystem-scale watershed protection efforts.

Presidential initiatives

Similar incentives are also provided under two presidential initiatives begun in 2002 – the Landowner Incentive and Private Stewardship programmes. These initiatives provide technical and financial help to states and private landowners who are interested in conserving wildlife habitat while continuing to engage in traditional land-use practices.

For conservation to be successful, we must involve the people who live on, work on and love the land. Citizen participation in the stewardship of natural resources helps people take conservation into their own hands by undertaking projects at the local level. Most Americans, especially those who depend on the land for their livelihood, are ready and willing to step up to the challenge of what Interior Secretary Gale Norton calls the New Environmentalism.

That brings us to another important goal of ecotourism – to support the economic and social development of people living close to these natural areas. This includes ensuring that local communities have a voice in the management of our lands.

The outdoor recreation sites managed by Interior agencies support thousands of local communities that benefit from nature tourism by providing a wide range of services to visitors who enjoy backpacking, fishing, climbing, river rafting, cross-country skiing, biking, use of some motorized vehicles and bird watching.

These are among the most thriving businesses in America's mountain communities. These 'gateway' communities – and the support groups they form to help conserve the ecosystems – play an important role in creating economic security and environmental stewardship.

In conclusion, I want to emphasize the importance of education in building public appreciation and support for conserving biodiversity. An impressive example of this type of outreach on the national and international level took place at the Winter Olympic Games in Salt Lake City in February of this year.

As the global spotlight focused on the Olympics, it also shined on the scenic beauty and economic dynamism of Utah and America's Intermountain West. State and federal land conservation agencies in Utah worked in exceptionally close collaboration as a major part of the effort to welcome the world to Utah.

They formed the America's Public Lands Partnership that developed a wide range of initiatives to carry out its mission of informing visitors about parks, refuges and recreational areas and the importance of their conservation. The partnership used an integrated approach to talk about these lands as an integrated whole, rather than by agency jurisdiction.

The message conveyed to Olympic visitors a cornerstone of the American democratic ideal – the values and history that underlie the conservation and use of America's precious natural resources 'for the people'.

The management of public lands is critically important for their conservation and, in turn, for the economic vitality of the communities that depend on them for their livelihood. The support, cooperation and engagement of citizens in this effort is equally vital if we are to maintain the 'purple mountain majesties' that have inspired so many Americans and visitors from around the world ■

Fran P. Mainella is Director, US National Park Service.

HIGH PRIORITIES

MOHAMED T. EL-ASHRY describes initiatives to sustain mountain ecosystems, protect biodiversity and enable mountain communities to improve their quality of life

Steen Wren/UNEP/Topham

Regarded by many as home of the gods and abode of the ancestors, mountains hold a special spiritual meaning for most religions and cultures around the world. As biological 'hotspots', mountains host thousands of endemic species. Environmental scientists refer to them as 'water towers' because they originate more than half of the world's freshwater reserves. Despite these natural riches, mountain communities are among the world's poorest. The condition of mountain ecosystems could mean enrichment or impoverishment to more than half of humanity.

In 2002, as we observe the United Nations' International Year of Mountains, the Global Environment Facility (GEF) continues to champion initiatives that enable mountain communities to improve their quality of life while protecting globally important biodiversity.

Leveraging funding

Over ten years, GEF has committed nearly $500 million and leveraged additional funding of more than $1.33 billion to fund more than 70 mountain-related projects in 44 nations. These projects are implemented by UNEP, the United Nations Development Programme (UNDP) and the World Bank.

David Mundrey/UNEP/Topham

GEF's mountain projects mainly focus on land that is protected by the governments of developing nations. Using GEF funding, governments have been able to create the infrastructure and provide the training needed to manage these areas sustainably. GEF projects have helped to conserve species in their own habitats. The Upper Mustang Biodiversity Project in Nepal, for example, will develop a natural resource management plan that will help preserve the area's rangelands and protect endangered species such as the Tibetan wolf and the Tibetan argali: it is ranked by scientists as one of the most biologically important areas in the world as the land is home to so many rare and endemic species.

Creating income

Working directly with communities, GEF projects identify activities that promote the sustainable use of resources. Projects also encourage the cultivation of non-timber forest products such as shade-grown coffee, mushrooms and medicinal plants. In the Hindu Kush mountains of Pakistan, local residents are using GEF funding to create a system that protects endangered medicinal plants while creating new sources of income. Revenues from controlled hunting, for example, are being directed to village development funds.

Projects also create other environmentally sustainable economic opportunities. One, focused on the binational basin of the Bermejo River in Argentina and Bolivia, addresses soil erosion in the Andes. The project will promote alternative income sources from ecotourism as well as educate local communities about the importance of environmental protection.

As a contribution to the International Year of Mountains, GEF is funding a UNEP-managed project that will create a comprehensive mountain atlas with information on the status of all mountain ecosystems. This will be used as a tool in sustainable mountain development. The project will also explore opportunities for building private-public partnerships, and promote the fair economic compensation of people who preserve mountain land that provides such crucial environmental services as water purification.

'People are resorting to education more, as there will be development only through education'

Vimla, Mountain Voices

'Mountain ecosystems' will be one of the priority themes at the seventh meeting of the Conference of the Parties to the Convention on Biological Diversity. Beyond the International Year of Mountains, GEF continues to facilitate the conservation and sustainable use of mountain ecosystems for global environmental benefit in response to the guidance of the Conference of the Parties and mountain communities.

Forging partnerships

As the designated financial mechanism of the Convention on Biological Diversity and the United Nations' Framework Convention on Climate Change, GEF's role is to serve as a catalyst. It works to forge true partnerships with and among governments, bilateral and multilateral organizations, non-governmental organizations, indigenous communities, private enterprises, grassroots organizations and other groups. We hope to deepen and broaden these partnerships even further in GEF's second decade. Such collaboration will be crucial for creating a policy setting that cuts across sectors and ensures that future – as well as present – generations will benefit sustainably from the bounty of our natural systems ■

Mohamed T. El-Ashry is Chief Executive Officer and Chairman of the Global Environment Facility.

Aveda

Natural beauty

DOMINIQUE CONSEIL describes how his company has set out to provide a business model for environmental sustainability

Ancient wisdom suggests: 'We should pray as if all depended on God and act as if all depended on us.' We feel overwhelmed by the environmental challenges facing our planet. And yet, individuals can make a big difference.

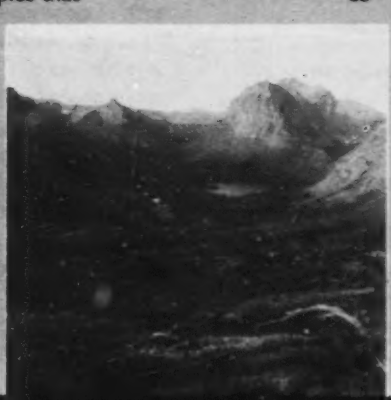
We are capable of great change based on a simple paradigm shift called 'biophilia', defined by Edward O. Wilson in *The Diversity of Life* as 'the connections that human beings subconsciously seek with the rest of life'. To indigenous people, ancient civilizations and our ancestors, this makes almost instinctive sense. However, our education system and way of life have separated us from what once was a given of the human condition.

Those who lead businesses and organizations can make an even greater difference. The results yielded by green leaders, once they become part of governments, make it doubtful that real change can come from the political world before public opinion is threatened by a sense of crisis and emergency. By contrast, business people can change the world by changing the way the world does business. This depends on another simple paradigm change. Organizations are composed of a critical mass of undecided individuals. Corporate systems are critically important, but no set of systems – no matter how perfect – will ever replace the forceful commitment of leaders. Leaders change the world by changing the way they lead their organizations.

Founding vision

Horst Rechelbacher founded the Aveda Corporation in 1978 with the vision that, in the chemical world of hair salons, someone had to bring products to stylists and their clients that were healthy to apply and consume – delivering the expected beauty result but not at the expense of body balance and well-being. In his view, such products could only come from Mother Nature but should not be manufactured at her expense.

In 'business as usual', environmental sustainability is rarely factored into the bottom line. But, at Aveda we strive to demonstrate through our operating principles that profitability and environmental responsibility are synergistic goals. We promote this philosophy across our economic activities as a developer and manufacturer of beauty products, a distributor to salons and spas and a retailer. We strive to minimize our ecological footprint in our product and packaging development, manufacturing, warehousing, transportation, product consumption lifecycle, waste management and recycling activities. We believe there is no responsible alternative to doing business in an environmentally sustainable way and view the sustainability challenge as one of protecting biodiversity.



Aveda

As a maker of plant-based hair, skin, body, aroma, make-up and lifestyle products, Aveda stakes its long-term business plans on the lifecycle of plants. Caring for biodiversity starts in our own backyard with the aromatic and medicinal plants we use as an industry. Yet, the first international survey of plant diversity found that at least one out of every eight known plant species on Earth is now threatened with extinction. It is madness to believe that biodiversity can decrease for ever without contributing to our own demise as a species. To ensure the long-term success of Aveda and other companies, a new paradigm for leadership must be developed and adhered to by a broad range of current and emerging business leaders.

This new paradigm must strive for the protection of plants and of the environment in which they grow. This includes the surrounding communities that depend on these plants for their livelihood and cultural traditions. The tragic world map of biodiversity is similar to the one of ethno-diversity. We are losing indigenous communities, languages and cultures at an alarming rate. With every language lost, so too is a culture, representing 150,000 years of human evolution, with its knowledge, wisdom, medicine, agriculture and art. In the business world, widespread plant extinction will not only affect the cosmetic, aromatic and medicinal plant industries but cause irreparable damage to pharmaceutical companies searching for new drugs – and ultimately to the people who need them. Industry leaders must take a stand in helping to protect the planet by stopping the rapid loss of biodiversity. Even for the sake of pure business performance, there is little doubt that environmental sustainability is a powerful enough guide to focus on the long term, and build a corporate culture that breeds personal responsibility, value-based decision-making, rigour and frugality.

In our struggle to protect biodiversity, we decided to focus on six threats: global warming, waste generation, loss of habitat, persistent organic pollutants, air pollution and water pollution.

Like many companies that strive to do business in a socially and environmentally sustainable way, we find there is often a gap between our expectations of performance and the reality of daily life. Besides breeding ▸

AVEDA™

integrity in the moment of action, we find the CERES Principles helpful in formalizing our environmental efforts, building the necessary management systems and tracking our progress. In 1989, Aveda was the first privately owned company to endorse the Principles (then known as the VALDEZ Principles). They are:

1 **Protection of the biosphere**
2 **Sustainable use of natural resources**
3 **Reduction of wastes**
4 **Energy conservation**
5 **Risk reduction**
6 **Safe products and services**
7 **Environmental restoration**
8 **Informing the public**
9 **Management commitment**
10 **Audits and reports**

We recently completed an exhaustive CERES report for the years 1996-1999, which presented our strengths and shortcomings across all aspects of our operations. We are committed to doing this annually. Public environmental reporting is an outstanding management tool. A commitment to transparency breeds correct and ethical competitiveness in the democratic and liberal world. Investors will increasingly value corporate cultures of transparency as a better guarantee for the preservation of their assets.

Constant review

Aveda employs a dedicated Environmental Sustainability team that constantly reviews our operating procedures to ensure that we are making on-going improvements – and leading by example. It publishes a quarterly newsletter that informs our internal staff and external customers of developing environmental initiatives – both inside and outside the company – and encourages individual participation. Among its members is the company's herbalist and 'medicinal plant conservation watchdog' who seeks out organic and biodynamic farmers and harvesters with sustainable practices around the world. He also now tracks the work of our Research and Development teams from the onset of their projects to ensure that every ingredient we use is fully traceable. Both the herbalist and the Environmental Sustainability team have the power to block a product's development if it does not meet Aveda's mission requirements. Operating a green business means greening suppliers and partners as well. It requires constant vigilance and communication to obtain outsourced components that satisfy the standards we set for the finished product.

Earth Month

Over the past year, our packaging team focused on improving our plastic bottles. They worked with our suppliers to increase the post-consumer recycled content of our bottles to an unprecedented level of 80 per cent – from an already industry-leading 45 per cent. This increase translates into a saving of nearly 150 tonnes of virgin high-density polyethylene (HDPE) in the more than 16 million bottles we use annually. If we followed the industry standard and produced bottles from virgin HDPE, we would need approximately 415 tonnes of virgin plastic a year; instead we require only 80 tonnes.

We do not only seek and measure our internal successes. It is equally important to us to create environmental awareness among our customers, distributors and suppliers. For nearly a decade, Aveda has extended the message of Earth Day to the entire month of April in a celebration of awareness and education called Earth Month.

This focused, activist-oriented campaign is implemented across our network of distributors and more than 8,500 salons, spas and retail stores. It is designed to fuel activism and raise public awareness – recognizing that we all play a vital role in the quality of our own life and that of future generations, and must take responsibility for our actions.

This year, Aveda focused its Earth Month efforts on global warming. Climate change threatens to destroy 30 per cent of all habitats within 100 years. With them will go many irreplaceable plant and animal species, the cultural traditions and health of communities that rely on them, even the medicines of tomorrow. Individuals can help minimize global warming's devastating effects by understanding its causes, and taking action.

In past years we have

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It is madness to believe that biodiversity can decrease for ever without contributing to our own demise as a species

raised awareness and money and generated actions for forestry, clean free-flowing water, 'debt-for-nature' swaps and other issues related to the protection of biodiversity. Each year more and more people join our campaigns and take time to learn about the issues.

In February 2002, Aveda played a role in organizing a symposium – hosted by the Medicinal Plant Work Group-Plant Conservation Alliance, a US Fish and Wildlife Consortium – to bring industry together with Native American spiritual leaders, environmentalists, conservationists, academics, botanists and government officials to take a serious look at the industry's sourcing methods in the name of protecting the Earth's biodiversity, and to offer more viable, long-term alternatives for sourcing and using plant materials.

The two-day Symposium was the first in the United States to address the fundamental environmental issues commonly overlooked in the herbal, medicinal and personal care products industries: the sustainable cultivation and harvesting of plant ingredients, the importance of traceability, and the long-term impact on productivity. Symposium participants urged industry to take responsibility for the health of the planet and its people by seeking alternative, sustainable ways to source the ingredients from which it ultimately profits. There was also strong support for increased communication with the general public to raise awareness about the devastating effects of poor growing and harvesting practices by producers of plant-based products.

Emulating nature

In 1997 Aveda discovered that the sandalwood oil in its *Love Pure Fume* was not 100 per cent traceable: the majority of Indian sandalwood is being unsustainably harvested – in some cases, poached – from forests across East India. We immediately suspended production and spent the next three years seeking out a sustainable source. In January 2002, we re-launched the product with fully traceable oil, sustainably harvested from trees in Western Australia. We trust we will have a fully traceable source of Indian sandalwood oil within a few months, thanks to the cooperation of the Government of India.

Aveda believes that nature should not merely be cherished and protected, but emulated as a model of sustainability. There is much to learn from traditional communities about co-existing with nature, caring for it while benefiting from its gifts. Since 1993, we have developed business partnerships with traditional and indigenous peoples who grow and harvest ingredients for use in our products. These partnerships help local communities to develop environmentally sustainable development models, to preserve their culture and to protect natural habitats.

One such group is the Yawanawa tribe in Brazil who provide a natural plant pigment called *uruku*, used in our lipsticks and in our botanical line of colour-enhancing shampoos and conditioners. In the Tambopata region of Peru, we work with Conservation International and the Ese'eja community to obtain Brazil nuts that are processed into protein and then used in our shampoos, conditioners and treatments. Another project involves the Quebradeiras de Coco, women who collect babassu nuts – whose oil is turned into a gentle cleansing agent which Aveda is using to replace many of the existing cleansing agents in its shampoos, and facial and body cleansers. An important side benefit is to decrease our dependence on coconut materials, thus reducing the excessive world demand that leads producing countries to convert rainforests into coconut plantations.

Source of inspiration

Our latest collection of products – called *Indigenous* – honours native wisdom. Inspired by some North American native peoples, the first collection is based on three plants – cedar, sage and sweetgrass – central to their culture. The ingredients are sustainably wildcrafted by Native American families using traditions and wisdom passed down through generations. ▸

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This year, Aveda's commitment to biodiversity has led us to a unique partnership with the international community. We have joined forces with UNESCO, UNEP, the United Nations Foundation, and an innovative organization, RARE Center for Tropical Conservation, to help conserve some of the world's most important sites.

This project is focused on six World Heritage sites in four nations: the Sian Ka'an and El Vizcaino Biosphere Reserves in Mexico; Tikal National Park in Guatemala; Rio Platano Biosphere Reserve in Honduras; and Komodo and Ujung Kulon National Parks in Indonesia. Home to indigenous peoples, endangered species and botanical wealth, they are irreplaceable sources of biodiversity, human cultural traditions and inspiration. Yet, like many World Heritage sites around the globe, they face mounting threats to their ecological health – deforestation, habitat fragmentation, pollution, unsustainable resource use, poverty, and limited financial resources for conservation.

Through targeted local awareness-raising campaigns, sustainable tourism development and catalytic training programmes for local staff and communities, the project aims to help each site mitigate specific threats, while creating a new model that can benefit other globally recognized protected areas.

As we approach the 30th anniversary of the World Heritage Convention this November, we believe it is more important than ever for the international corporate sector to play a role in protecting the world's cultural and natural heritage. We are proud to be a part of this effort.

Sustainability is a complex concept that inspires multiple definitions. The Brundtland Commission defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' While this is certainly not the final word on the subject, Aveda operates by this definition for the time being.

Whatever the definition, it seems to us that environmental sustainability concerns breed a business culture that induces economic sustainability. Long-term focus, transparent reporting, fair trade with economically challenged communities and social responsibility are values that will help any business outperform its competitors and return superior value to its shareholders in the true spirit of ethical capitalism in a liberal economy.

Temperance and humility

It is about commitment from senior management. When environmental sustainability concerns are rooted in the origin of a project, there is little or no cost penalty. Both nature and virtuous capitalism teach temperance and cost-consciousness. It is also about humility and a willingness to share shortcomings, as well as successes, for everyone's benefit. As more industries find out that 'nature works' for both sustainability and the bottom line, they will change the world ■

Dominique Conseil is President of Aveda.

Aveda

Towards Johannesburg

Klaus Töpfer talks to Geoffrey Lean about the forthcoming World Summit on Sustainable Development

September must witness the formation of a new coalition, an alliance for 'responsible prosperity', says Klaus Töpfer, UNEP's Executive Director. The World Summit on Sustainable Development in Johannesburg should give birth to a global partnership to carry out concrete and targeted action to put resolutions already agreed by the world community into practice.

The Summit – which marks the 10th anniversary of the 1992 Rio Earth Summit, and the 30th of the Stockholm Conference on the Human Environment – also presages a more recent, and more tragic one. For it will end just a week before the first anniversary of the attacks on the World Trade Center and the Pentagon. If it succeeds, Töpfer goes on, it could make the world safer as well as more prosperous.

He brings a unique perspective to the event. As Germany's environment minister he was an important player at Rio ten years ago. And from 1994-1995 he was Chairman of the Commission on Sustainable Development, the body the Earth Summit set up to monitor the implementation of its decisions. He is thus the only person to have headed both of the main United Nations organizations concerned with the environment and sustainable development.

He cites Jan Pronk, the UN Secretary-General's special envoy to the Johannesburg Summit, in calling for 'a coalition for sustainable development for humanity and civilization', adding: 'We must come to a coalition for responsible prosperity for all, a coalition for the fight against hunger and desperation and environmental destruction.

'Responsible prosperity,' he explains, 'means both fighting poverty and changing unsustainable patterns of consumption. Of course we must make a summit on sustainable development a summit against poverty. But unsustainable consumption patterns are a reason for poverty in other parts of the world because we are exporting environmental burdens. The most obvious symptom of this is climate change: carbon dioxide emissions mainly arise from developed countries, but the impacts – such as desertification, sea-level rise, and extreme weather conditions – are mainly to be found in developing ones. The welfare of developed countries is thus being heavily subsidized by developing ones, and by future generations.

'Prosperity in developed countries alone is not always responsible, and nor is the economic situation of developing countries. Something has to change in both.'

Similarly, there can be no lasting economic development unless the natural resources and services provided by the environment are protected. 'Environmental services are more and more the bottleneck for economic development, and so to integrate the two is not a matter of luxury or nostalgia, but of investment. Without better and more stable environmental services you cannot arrive at reliable economic development.

VALUE OF DIVERSITY

'It is also very necessary to underline the high value of diversity. We need cultural diversity as a stabilizing factor in the process of globalization. The more we are globalizing, the more necessary it is to have respect for regional identities. This diversity is a strong basis for tolerance, openness and dialogue. There is also a very intense positive correlation between cultural diversity and biodiversity.

'This is a very necessary component for the Summit. Sustainable development needs diversities of culture, spiritual values and biodiversity. Without respect for the creation of God and the values of indigenous people, you cannot arrive at a peaceful and stable world.'

All these themes – and the fact that the Summit also marks the 30th anniversary of the international community's decision to establish UNEP – are brought together in the organization's slogan for Johannesburg: *30 years UNEP: Environment for Development – Planet, People, Prosperity.* ▶

Johannesburg, Töpfer continues, 'must be the Summit of implementation of existing declarations. We have very important and very good declarations, first and foremost the Earth Summit's Agenda 21. Now it is high time to implement them, with a targeted, benchmarked timetable-orientated action programme.

'It must be a summit of concrete actions, reliable and accountable, with the aim of overcoming poverty through investment in jobs, using the "interest rate" on nature's capital (but not the stock itself), and changing unsustainable consumption patterns in the developed countries.'

INVESTMENT FOR HIGH RETURNS

'A lot of people believe that there must be a global deal, with contributions from both developed and developing countries. Economic cooperation is not a matter of charity but of investment, and investment with a very high return. It is also investment in a peaceful world. So when the developed world provides resources this should not be seen as "aid" per se but as investments it is making in its own interest, as well as in those of developing countries.'

Developing countries have much they could bring to that deal in return for such cooperation. 'The remaining biodiversity, which is mainly in developing countries, is of the highest importance for economic development in the future. So they bring this asset. They also bring the assets of the human capital of their young populations, indigenous knowledge not protected by "property rights", cultural and spiritual values, carbon sinks – and a lot of others – to this deal. And they must also bring good national governance, the fight against corruption, and the fight against tension, conflict, wars and civil wars.'

The New Partnership for Africa's Development – an initiative by African leaders to eradicate poverty and achieve sustainable development with financial help from developed countries – is a 'very good example' of the kind of regional partnership that could be integrated into such a global deal.

The deal would have to be linked with concrete commitments by such stakeholders as governments, private business and foundations. 'One wonderful example' was Ireland's commitment to raise its aid to the United Nations' target of 0.7 per cent of its GNP by 2007. He hopes 'others will also come with clear timetables'.

Industry should also offer concrete targets. 'For example, can we come to a commitment in Johannesburg that by the year 2007 we could have a world without leaded gasoline? Or that, by 2010, we could cut the leakage of water in African cities from over 50 per cent to 25 per cent? More and more business leaders are now stressing that the gaps between rich and poor and humanity and nature must be bridged if global markets and prosperity are to be assured and this must be developed as part of the coalition.'

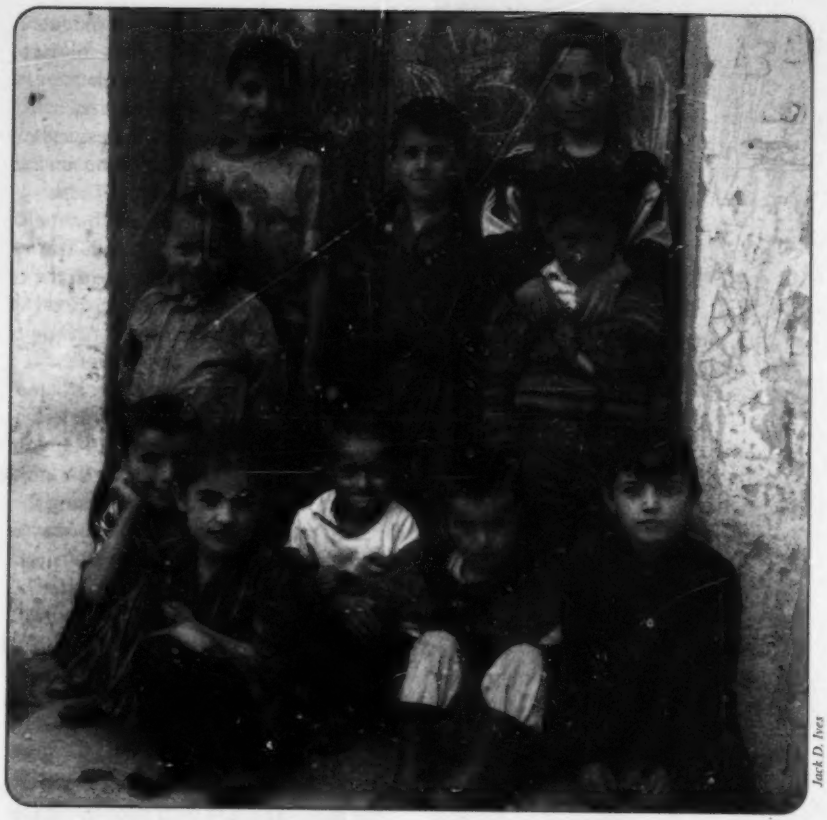
REALISTIC OPTIMISM

Water would provide one important focus for the Summit, he continued, as it was linked both to the need to eradicate poverty and to many issues high on the environmental agenda. Some 6,000 children die every day from waterborne disease, while water is linked to such priority topics as climate change, contamination by chemicals, flooding and the preservation of watersheds, and biodiversity, not least in wetlands.

Like the Stockholm and Rio Conferences before it, the Summit would also have to decide how its decisions would be monitored. 'We have to ask ourselves what the best administrative and governance structure would be to increase the probability of implementation and to make the monitoring reliable and honest.' UNEP's Governing Council had taken a step forward on the governance of the environmental part of sustainable development at its meeting in Cartagena in February.

In all, says Töpfer, the results of the Summit should be in three layers: 'a political declaration; a concrete targeted action programme; and concrete commitments to projects.'

He concludes: 'I believe in realistic optimism for a very important summit, with a very relevant outcome concentrated on making this world safer and better. UNEP and I personally will do our utmost to contribute to bringing this about' ■



Jack D. Ives

ALONG A **STEEP PATHWAY**

JACK D. IVES traces the history of concern about mountains and provides perspectives on their present and future

Mountains and Ecotourism have, appropriately, both been given the designation of an 'international year' by the United Nations. For both this represents a considerable challenge. For ecotourism, it signals the urgent need to make much of the tourist industry more sensitive to the well-being of mountain peoples and their environment. For mountains, it represents their transfer – in barely a decade – to centre-stage on the world's political agenda after being backstage prior to the 1992 Earth Summit. This has been reflected in the increasing attention paid to them by the news media, often with enhanced overtones of crisis and ecological destruction.

As mountain regions have become more accessible, they have been progressively swamped by mass tourism, reputedly the world's fastest growing industry. The increase in media coverage of both the impacts of tourism and of the spread of the new globalization into the remotest mountain regions has resulted in misconceptions and misrepresentations of the problems actually faced by the mountains and their extremely diverse peoples. The International Year of Mountains must clarify the issues and lay the foundations for more effective development and conservation. The International Year of Ecotourism must move toward a more appropriate balance between economic initiatives and the aspirations of the predominantly poor people of the mountains.

Mountains occupy about 20 per cent of the world's land area and are home to about 10 per cent of its population. They rise on every continent and extend from the equator almost to the poles, from humid coasts to the dry interior. They encompass a wide range of micro-climates and ecosystems: monsoon rainforests; temperate forest belts to upper treeline; grasslands; steppe; desert; alpine meadow; tundra; bare rock; glaciers and permanent snow. Climatic processes – global, regional and local – are influenced by altitude. More than half of our freshwater originates in the mountains: they have been called the 'water towers of the world'.

Up to the last decade, they were often seen as the preserve of mountaineers and tourists – especially winter sports enthusiasts and warmer season trekkers – and of a relatively small number of scientists. The people who lived and made their livelihood in them were largely ignored.

Let us try to picture the mountain landscapes of 30 or 40 years ago. Their physical characteristics, together with their relative inaccessibility and remoteness from the mainstreams of world society, conjure up visions of indestructibility, ruggedness, hostility to most human endeavour and, thus, lack of general interest. Yet these same characteristics have led to unparalleled biodiversity and a correspondingly large share of the world's cultural diversity. Biodiversity can only be conserved when equal attention is given to cultural diversity.

Awareness was growing by the 1970s and 1980s – initially over the 'preservation of the Alps' and over the need to avert a perceived imminent environmental catastrophe facing the Himalaya. In the Alps, uncontrolled growth of two-season tourism threatened the beauty of the traditional mountain landscape. In the Himalaya, it was assumed that massive deforestation was being caused by so-called 'ignorant' mountain subsistence farmers. Their rapid population growth (at 2.7 per cent a year in Nepal, for example) and their dependency on forests for construction materials, fuel ▸

and fodder, as well as for more land to extend supposedly unstable agricultural terraces, led to the assumption that the perceived impending environmental collapse was entirely due to imprudent indigenous land use. The acceleration of landslides and soil erosion, influenced by gravity and torrential monsoon downpours, was widely believed to cause downstream siltation and an increase in severe flooding in India and Bangladesh, adding the potential for dangerous international dispute to the environmental threat. Nevertheless, interest in the mountains, though increasing, remained very limited up to 1992.

Why were mountains, only 10 to 20 years ago, not afforded a more prominent place on the world's political agenda? Desertification, encroachments on tropical rainforests, the endangered oceans, wetlands, Antarctica – all had their determined activists. Concern also developed over air pollution, the 'ozone holes', climate warming, rising sea levels – all threats to 'Western civilization'.

A partial answer is that mountains had not yet attracted an effective constituency. Great strides were made during the 1972 Stockholm Conference in recognizing the dangers of the growing North-South gap and by establishing many Ministries of the Environment. Yet mountains did not even warrant a footnote. Nevertheless, UNESCO's Man and the Biosphere (MAB) Programme, established the Study of the impact of human activities on mountain ecosystems as the sixth of its 14 projects. From this arose the Obergurgl Model – one of the first attempts to study the interrelations between tourism, resource use in general, and the functioning of mountain ecosystems in a small Tyrolean community. MAB-6 flourished as a series of ever more sophisticated national mountain research programmes: Austrian, French, Swiss, German. Research was also initiated in the former USSR, Chile, Spain, China and Nepal, to mention only a few.

Establishing MAB-6 was a turning point. It led to the United Nations University's (UNU) project on Highland-Lowland Interactive Systems (1978), the founding of the International Mountain Society (1980), the quarterly journal *Mountain Research and Development* (1981), and the establishment of the International Centre for Integrated Mountain Development (ICIMOD) in Kathmandu (1983). The UNU mountain work progressively demonstrated the over-simplification, even the dangers, of the popular view of environmental catastrophe and its causes in the Himalaya. Gradually it became recognized that mountain minority people were not 'the problem', but an essential part of the solution(s). It was also realized that the majority of Himalayan farmers were women and that every effort should be taken to include them in decision-making.

Attracting a constituency

All this laid the foundation for forming the hitherto lacking mountain constituency. The real breakthrough for action came with the inclusion of Chapter 13 (managing fragile ecosystems – sustainable mountain development) in Agenda 21 during the Earth Summit. The Food and Agriculture Organization of the United Nations (FAO) became the Focal Point for Chapter 13 and the Mountain Forum was initiated in 1994. These developments formed the springboard for the General Assembly's acceptance of the resolution of Kyrgyzstan for designation of an International Year of Mountains. Within weeks an International Year of Ecotourism was also approved.

What problems face the world's mountains? Over-use and misuse of natural resources – water, forests, grasslands and minerals – can lead to soil erosion, water and air pollution, and downstream damage. This is particularly serious on the steep slopes of mountain landscapes. Unregulated mass tourism can also lead to environmental degradation, loss of biodiversity, disruption of mountain cultures, and an augmented sense of deprivation among many poor mountain people. These topics hit the news headlines, but they are frequently over-dramatized. Too often the causes, as in the case of the Himalaya, are misunderstood, over-simplified or even falsified.

The entire complex of mountain problems has been further exacerbated by an apparent unwillingness (at least until recently, especially after 11 September, 2001) to publicize the single most devastating process occurring in mountains – warfare in all its forms: conventional armed conflict; guerrilla insurgencies; drug wars; terrorism. Mistreatment of mountain people has greatly increased the number of internal and international refugees – Jacques Diouf, Director General of FAO, points out that of the 27 current wars, 23 are located in mountain regions. This disproportionate burden, carried by the mountains and their people, signals real and unprecedented disaster – human, economic, environmental, political. Mountain peoples, usually ethnic minorities, are frequently victimized by central governments. They are often blamed for catastrophic degradation, and regulations such as logging bans are imposed by the bureaucracies in the lowlands. This cannot lead to successful solutions, and may exacerbate mountain poverty and generate further unrest.

Better balance

Mountain regions in industrial countries are certainly beset by excessive tourism. However, the tourist industry – especially the ski resort operators in the North American West, in the Alps, and in the Japanese mountains – are beginning to recognize the need for a better balance between development and the environment. There have been some commendable successes. The Alpine Convention provides a vital starting point. The significant recent recognition of Switzerland's Aletsch region – which includes the Aletsch Forest and the well-known peaks of the Jungfrau, Monch, and Eiger – as a candidate for

'Terraces are built to reduce soil erosion. Springs are developed and maintained regularly to provide safe drinking water. Schools are expanding in the rural areas and people are becoming literate'

Belay, Mountain Voices

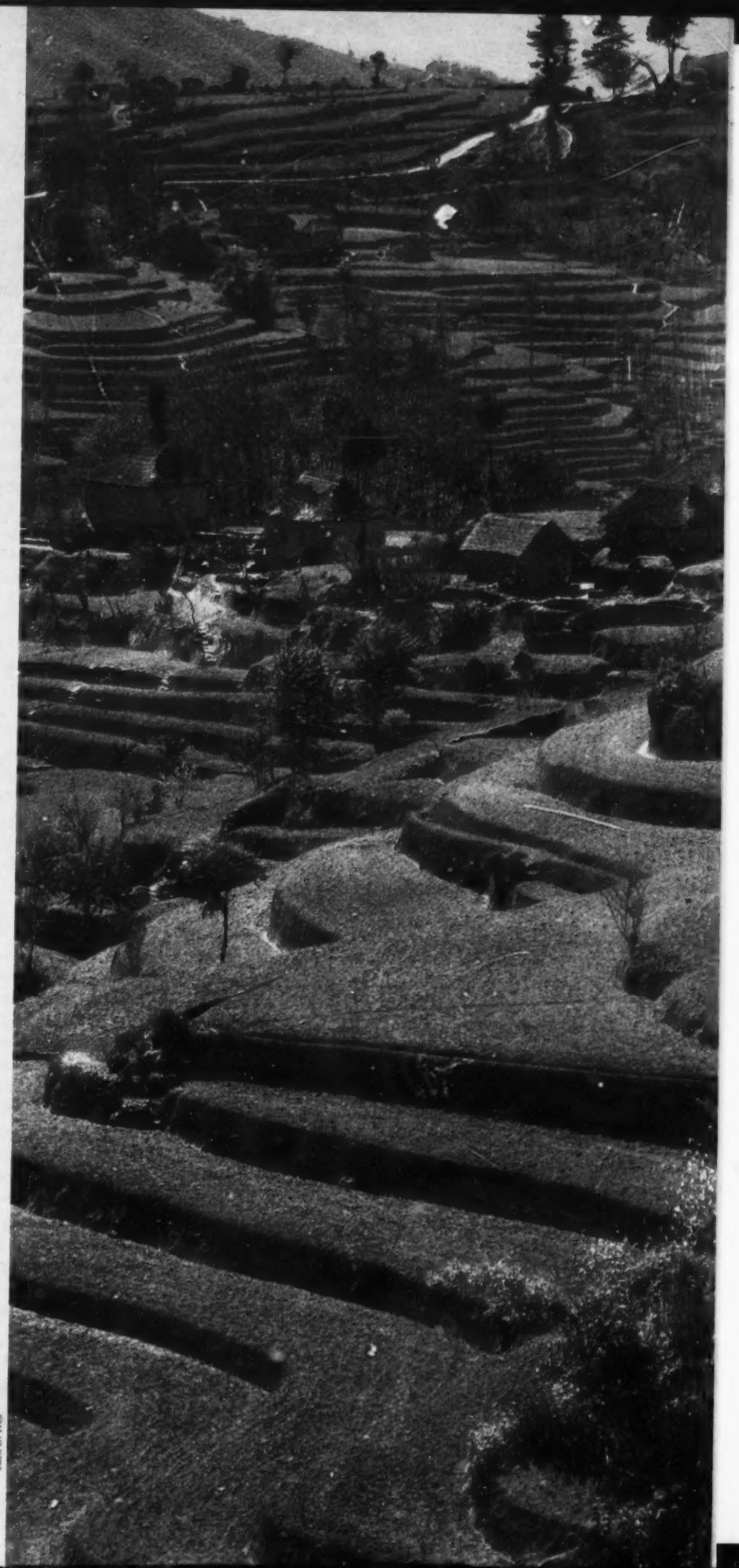
World Heritage status should provide a model for other regions. Remarkably, agreement on this was reached between three levels of government: federal, cantonal and commune. Similarly, there are encouraging adaptations to changing conditions in developing countries: the Sherpa of Khumbu near Mt. Everest, for example, have made a significant and profitable adjustment to the tourist invasion, although some serious concerns remain.

Momentous year

What should we expect from this momentous year of the mountains? We need a much more accurate portrayal of the complex of problems facing mountain lands and we must discredit the over-dramatic simplifications of the past. The only generalization we can make about mountains is that any generalization is hazardous because they are the most complex landscapes on Earth. Each of the many problems, their causes, and potential solutions must be examined, range by range, valley by valley. This approach may appear too academic and impractical, especially for the large donor bureaucracies. But the alternative – the search for a simple panacea that has typified so many previous efforts – may be much more costly; probably counterproductive.

Mountain peoples must be afforded better treatment for the sake both of their extensive environmental knowledge and of their inherent rights as human beings. The full potential of their contributions must be realized, and they deserve adequate benefit from the development and/or conservation of their local resources. They must therefore be part of any management strategy as principal stakeholders. The inspirational, spiritual and religious endowments of mountains must also be used to greater advantage in the pursuit of an ideal – to achieve a better balance between mountain environments, development of resources, and the well-being of mountain peoples. The year 2002 is a great opportunity to advance far along this steep and difficult path ■

Professor Jack D. Ives is Senior Advisor on Mountains for the United Nations University and Honorary Research Professor, Carleton University, Ottawa, Canada.



Jack D. Ives

THE HEIGHT OF TROUBLE

YOLANDA KAKABADSE charts the decline of biological and cultural diversity in the mountains and calls for urgent action

What is special about the biodiversity of mountains? It depends whom you ask. Botanists may answer in the loudest voice, because so many centres of plant diversity are in mountains. They will point to the amazing species richness of tropical mountain forests, the variety of wild plants that grace alpine meadows in spring and summer, and the remarkable adaptations of rock-dwelling species to their harsh environment. Zoologists will note the unusually high levels of speciation and endemism among mountain fauna – especially the insects and birds, which have been the most studied. Conservationists will highlight the many mountain 'flagship species', from giant pandas and snow leopards to mountain gorillas and spectacled bears. Food scientists and mountain farmers will focus on the disproportionate number of food crops that originated in the highlands.

Anthropologists will praise the diversity of human cultures in mountainous regions, whose languages, gods, traditions and artistic expression seem to vary from valley to valley. All will agree that mountain ecosystems are priceless repositories of genetic, species, ecosystem and human cultural diversity.

Ecologists tell us that the high biodiversity of mountain ecosystems results from the sheer variety of micro-environments on the steep and varied terrain – habitats that demand new adaptations and favour the evolution of new species and varieties. They also point to the frequent natural upheavals that can suddenly send even the most solidly-rooted tree or graceful chamois tumbling down a precipice. Yet another factor is the geographical isolation of mountain species which (with a few mobile exceptions), are unlikely to mingle their genes with their neighbours across the valley – one reason so many mountain plants are self-pollinating. Human communities follow the same pattern, divided as they are by physical barriers into small ethnic groups with a variety of cultural adaptations to life in difficult conditions.

In popular literature we repeatedly come across the phrase 'fragile mountain ecosystems'. This seems an oxymoron in the light of the resilience and robustness of mountain plants and animals, which seem able to withstand nearly anything nature throws at them. But harsh and variable conditions are a constant in mountains, as dependable as the opposite condition – lack of change – is in the deep sea. Rockfalls, snow avalanches, extremes of light intensity, temperature and humidity – even volcanic activity – are nothing new to mountain species. Given enough time they adapt, turning adversity to their competitive advantage. Unfortunately, the increasing vulnerability of mountain ecosystems is a result of change that is too rapid and severe to allow such adaptation to take place. This change is imposed directly and indirectly by human activities.

Jack D. Ives

US National Park Service

Unprecedented change

After millennia of more-or-less successful human adaptation to mountain conditions, we are now witnessing unprecedentedly rapid change. Tropical mountain forests are being lost faster than those of any other biome, even lowland tropical rainforests according to the Food and Agriculture Organization of the United Nations. Air pollution transported long distances from urban centres is causing the death of forests from the Giant Mountains in Central Europe to the Adirondacks in the United States. The mining industry is developing ever more efficient methods of removing mountaintops, while the lucrative and intense cultivation of drugs is replacing traditional agriculture and forestry in highlands from Central Asia to South America. Most of the major armed conflicts in the world are fought in mountain regions, with predictably devastating effects.

The implications for mountain biodiversity are widely apparent. Sixteen of the 25 'hot-spots' for species extinction, on which the conservation community is now focusing, are wholly or mainly in mountains. They include the uplands of Madagascar, the Andean slopes of Western Amazonia, the Eastern Himalayas (Nepal, Bhutan, and neighbouring Indian states, plus China's Yunnan), the uplands of the Philippines, the Eastern Arc montane forests of Tanzania, the mountains of Central America, and Brazil's Atlantic Forest.

The effect on human cultural diversity is just as profound. Research and technology intended for the lowlands have been applied to mountain environments, ignoring and eroding the sustainable practices so painstakingly developed by their communities. Societal influences are pushing mountain people toward consumerism and cash economies for which they are often ill-prepared, eroding their cultural and spiritual values along with their once-abundant natural resources.

And now an even greater and more pervasive threat looms. Global warming will adversely affect mountain ecosystems more than others, shifting vegetation zones, melting glaciers

'They used to plant trees, and different varieties too, and potato, and coca. Now there aren't any trees, just four or five little stumps'

Adela, Mountain Voices

Zou Cun Zhang/UNEP/Topham

Xu Yi Min/UNEP/Topham

Carol Peterson/UNEP/Topham

and altering rainfall patterns. As ecosystems move higher, suitable habitat will be compressed into ever smaller areas; and populations of animals and plants will be stranded and isolated. Increasing competition for space and food can cause populations to decline below the point of viability, as loss of genetic diversity undermines their ability to adapt to the new conditions.

Human needs

The loss of mountain biodiversity – and of the time-tested models for sustainable use of biological resources developed by mountain people – will affect us all. Humanity depends on the natural resources of mountains: their forests, fields and pastures, and especially the water they deliver to our rivers, lakes and underground aquifers. We depend on the medicinal materials derived from mountain wildlands and the genetic diversity of their rare or unique species, from Andean potatoes to the coffee of the Ethiopian highlands. We need the wild relatives of our mass-produced crops, from the primitive relatives of corn or maize on a mountain in Sierra de Manantlán, Mexico, to the wild relatives of wheat and fruit trees high in the Caucasus.

The International Year of Mountains comes none too soon. Mountain resources are increasingly subjected to outside economic and political pressures, with biodiversity often the first sacrifice. The environmental community, guided by the partners in Mountain Agenda, must quickly come to terms with the threats to the Earth's mountain ecosystems and cultures before even more is lost.

We invite them to make full use of the wide network of natural and social scientists that make up the IUCN family, including its Biodiversity Policy Coordination Division, its Species Survival Commission, and its World Commission on Protected Areas (WCPA). The WCPA Mountain Theme Programme is showing the way, working hard under the inspiring leadership of Larry Hamilton to strengthen the management of the 500 mountain protected areas whose biodiversity is still relatively intact. We need to bring to bear every last bit of expertise we have on mountain ecosystems if we are to preserve what remains of them, and secure the livelihoods of the billions of people who depend directly or indirectly on mountain resources ■

Yolanda Kakabadse, a former environment minister of Ecuador, is President of IUCN–The World Conservation Union.

Jack D. Ives

Mauro Baldetti/UNEP/Topham

DISNEYLAND *or* DIVERSITY?

WENDY BREWER LAMA and **NIKHAT SATTAR** describe how serious impacts on mountain biological and cultural diversity by the world's fastest growing industry is causing growing interest in ecotourism

Mountains – homes of the gods, sources of life-giving waters, gigantic monuments of rock and ice – that for centuries posed as impenetrable boundaries, are increasingly falling vulnerable to humans' sporting endurance, to an onslaught of travellers seeking escape from cluttered lives, and to demands on natural resources and cultural institutions that far exceed their capacities.

Mountain tourism constitutes 15-20 per cent of the industry worldwide, worth $70-90 billion per year. It is vital to the conservation and development of mountain regions, and has brought laudable economic opportunities to these previously isolated and undeveloped areas. But it is also turning them into 'the world's highest waste dumps', high-altitude Disneylands that misrepresent and exploit mountain cultures with little gain for their inhabitants. Roads, airports, hotels, communications and other infrastructure developments are opening them to mass tourism before proper planning or management can take place.

Tourism's impacts on mountain ecosystems and biological resources are of great concern. Immense changes in altitude and associated climatic conditions result in great variations in temperatures, precipitation, soils and vegetation, breeding a rich diversity of ecosystems. But these conditions also impose inordinate stresses on natural resources – which are compounded by unrestrained human activities and development.

High impact

Unmanaged tourism can have a high impact on sensitive mountain environments formerly buffered from disturbance by remoteness and isolation. It can lead to the removal of vegetation, the degradation of forests; disturbance to wildlife, the reduction of habitats, and an increased incidence of forest and grassland fires. Tourism generates a high volume of rubbish and waste which mountain communities are unprepared to process. And sustainable agricultural practices that promoted agro-biodiversity become geared instead to meeting tourism market demands, creating a chain effect on cropping patterns, loss of soil productivity and soil erosion, and ultimately destruction of habitats and ecosystems.

Mountain regions are repositories of high concentrations of endemic species and vital reservoirs of genetic diversity. They are also critical corridors for migrating animals and sanctuaries for plants and animals whose natural habitats have been squeezed or modified by both natural and human activities. The loss of such biodiversity has environmental, ethical, health-related and economic implications. Many high-altitude plants, for example, have medicinal properties important to mountain people's well-being, and/or potential economic value that can boost mountain economies.

Cultural identities and diversity in mountain regions are also under threat from the economic, social and environmental forces associated with mountain tourism. Cultures long secluded by rugged terrain and isolation are suddenly 'object matter' for camera-toting tourists. Knowledge and skills refined over generations lose value in the face of high-tech mountain sports and demand for five-star hotel standards. A loss of cultural identity leads to increased crime and drugs, and the degradation of community values and religious practices that once held the society together.

Mountain peoples must have a say and a stake in the state and future of their cultures. Tourism can provide them with it by giving value – and income – to maintaining such authentic cultural

features as architecture, dance and song, food, dress, historic knowledge and handicraft skills. Well-conserved mountain cultures can be a unique attraction to tourists, and the attention of outsiders can promote cultural pride and a desire to restore authentic cultural heritage. There is a fine line, however, between sustainable cultural tourism and over-commercializa.ion of culture. Treading it successfully demands local participation and commitment to authenticity, equity and careful management.

Due to isolation and limited access, many people living in mountain areas lack sufficient skills and resources to invest in tourism or benefit significantly from it. Tourism does provide jobs and investment opportunities, but it tends to benefit households and investors who already have significant assets. The trickle-down benefits to poorer, uneducated households are generally limited to menial labour jobs, some farming and food production, and minimal profits from time-consuming handicraft production. Local populations living in and around mountain parks often bear the burdens of tourism – such as increased waste, security risks and inflation – but receive little benefit from park entry fees for much needed local development and conservation.

Heightened dependency

As tourism has grown and other sources of livelihoods and market demand have declined, some mountain economies, including agricultural communities, are becoming overly dependent on it. If and when tourism declines, economies, social structure and cultural conservation efforts suffer inordinately. A case in point: due to the current political instability in Nepal, tourist arrivals have diminished significantly this year, and village lodge operators are squabbling for visitors' business. The loss of income, and heightened competition, have contributed to the weakening of lodge operators' commitment to conservation (such as waste management schemes) and have challenged the communities' support for cultural and religious institutions.

Gender roles and relations often change when tourism enters the local mountain economy. Guiding or transport jobs take men away for long periods, adding considerably to women's already heavy burdens of household, child-rearing, agricultural and resource-collecting tasks. The additional responsibilities – combined with women's relatively low socio-economic status and their lack of 'economic worth' through earned wages – holds them back even further from pursuing education, careers and political involvement, and can affect their health, longevity and children's welfare.

Tourism will evidently remain one of the world's fastest developing industries, with significant, direct and mounting impacts on the sensitive ecological and cultural values of mountain areas. Such concerns are driving a growing interest in the concepts and practices of sustainable and eco-tourism.

Chapter 13 of Agenda 21 recognized tourism as an important component in sustainable mountain development and conservation, and acknowledged the role of the Mountain Forum and others in enhancing the position of mountains on the global environmental agenda. The year 2002 has been designated as both the International Year of Ecotourism and the International Year of Mountains, and throughout the year ecotourism planners are gathering around the globe to share experiences and draw up recommendations on such issues as how to measure and mitigate the impacts of tourism on biodiversity and indigenous cultures, equity in benefit sharing, development of industry standards, the roles of various stakeholders in tourism management, and the importance of the participatory approach in building sustainability. The Biodiversity Planning Support Programme of UNEP, the United Nations Development Programme and the Global Environment Facility provides assistance to national biodiversity conservation planners, and is undertaking a study on 'global best practices' for integrating biodiversity and tourism.

Common to nearly every locale and culture is the lack of any tourism or development plans for mountain regions. Planning for mountain tourism must assess the short and long-term environmental impacts of development and give priority to tourism activities that benefit local people, while generating sustainable revenues and support for conservation.

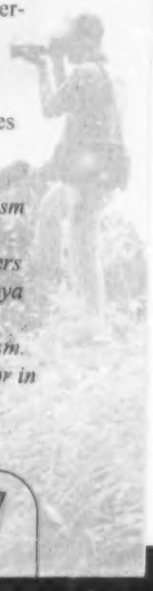
'...it seems as if cash itself is life. There is money all around us but we don't know how to accumulate it. We aren't used to amassing money'

Chandra, Mountain Voices

Natural strengths

Some of the same characteristics that hinder development and conservation – such as isolation, limited access, ruggedness, altitude and climate – also make mountains attractive places for tourism, and help to protect biological and cultural diversity. One way to keep mountain tourism activities within an appropriate scale and level of impact is to build upon the natu[illegible]trengths and assets of the area and its people. By learning to value such assets as the basis for a mountain tourism economy, stakeholders come to realize the importance of conserving them, and of managing tourism properly. In this way, tourism serves as a 'tool' for conservation and development.

Strong stakeholder participation – particularly by mountain peoples, but also by government policy-makers, non-governmental organizations, the private sector and, ideally, the mountain tourist – is important throughout the planning, implementation and management of mountain tourism. Experience has now shown that this, and equitable benefit sharing, will produce more sustainable practices, and better-conserved biological and cultural resources. Local people need to be engaged in mountain tourism and empowered to conserve the resources upon which it depends ■



Nyaung U Po Chel/ NEP/Topham

Wendy Brewer Lama is an Ecotourism Planning Consultant working with communities protected area managers and the private sector in the Himalaya and parts of China to plan for and promote community-based ecotourism. Nikhat Sattar is Programme Director in IUCN Asia and also the IUCN Asia Coordinator for IYM 2002.

A fuller version of this article, including detailed recommendations, is available at www.mtnforum.org/resources/library/lamax02A.htm

UNEP/Topham

PATH TO DISCOVERY

CATHERINE NIXON COOKE explores the spiritual importance of mountains, and describes successful bids to protect and restore sacred sites

From the majestic Himalayas of Asia to the Cordillera Blanca in the Andes, from the legendary sacred peaks of Olmolungring, supposedly hidden behind a towering wall of snow mountains just north of Tibet, to royal Mt. Olympus, where Greek gods sipped ambrosia and planned their escapades, from Kilimanjaro, the roof of Africa, to the magical promises of perfection of Shangri-La – mountains have captured our imaginations for centuries. They have been powerful barriers of rock and ice, protecting civilizations from warring invaders. They have lured great explorers to their summits. They provide freshwater to more than half of humanity. And they are home to about a tenth of the world's population.

Mountains deserve the United Nations' special 'International Year' designation for many reasons. But given the world's present precarious state, it is perhaps their ability to rise (literally) above the planet's troubles, and to unite us in their universal appeal, that makes them such a welcome summit of celebration.

In the teachings of the Bible, in ancient Buddhist scrolls, in traditional Inca practices and elsewhere, people have lifted their eyes to the hills, and found inspiration in the peaks that seem to reach towards heaven, enlightenment and the home of the sun.

Sharing stories

During the Year, the Mountain Institute is working with the US National Park Service, the Ford Foundation, and the Nathan B. Cummings Foundation to share mountain stories, including important Native American traditions, with park visitors through new interpretive materials that will enrich their experience, and teach modern culture some of the sacred lessons of the past.

'My grandmother told me that if the mountains and springs and trees and minerals in mountains are not wisely used, tragic things could happen,' Jim Enote, a member of the Zuni Pueblo, told the United Nations General Assembly last December. 'She knew the world like no other person I knew. She said by triggering the pressure points of certain places at certain times on the landscape or elsewhere in the universe we could willingly or unwillingly control the creation of beings, fertility, or even climate. This kind of knowledge is powerful and even dangerous if it is not respected.

'From my grandmother's words I have special appreciation for the sacred power of mountains because there are so many wrinkles, surfaces, and characters upon the mountains and therefore so many pressure points to protect or disturb.'

Pressure points

Some of those 'pressure points' are impacted by such aspects of modern progress as tourism, population growth, conflicts between groups competing for resources, and the influx of outside ideas and peoples. And since mountain pilgrimage sites tend to be more ecologically fragile, and regenerate more slowly than lowland ones, the growing number of pilgrims is severely impacting many sacred places. The *Periya National Park* in southern India, for example, receives more than 30 million pilgrims during one particular week each year. More positively, the refuse problem on Mt. Everest is well on its way to being resolved, just in time to celebrate

'...the peak of the mountain is associated with a supreme being, as this is where it is most likely to be inhabiting'

Wycliffe, Mountain Voices

Shaghati Mabel/UNEP/Topham

the 50th anniversary of the great climb to the summit by Edmund Hillary and Sherpa Tenzing in 1953.

Many conservation-based and culturally sensitive organizations are working in the mountains. The Year provides an opportunity to highlight some of their projects, as well as to share the threats and opportunities that challenge sacred sites.

UNESCO, for example, in partnership with the Ghana Environmental Protection Agency and the German Federal Ministry for Economic Development, has established protective buffer zones around Ghana's 'sacred groves' in its savanna ecosystem, focusing protection and restoration on the traditional beliefs and cultural values of the local community. The Mountain Institute, in collaboration with The Netherlands Development Organization and Nepal's Department of National Parks and Wildlife Conservation, has created similar buffer zones in the remote Makalu-Barun region of northeastern Nepal. Behind both projects is the concept that local stakeholders must determine what is meaningful, even sacred, in their landscapes and their lives – and must develop local mechanisms to restore and protect it.

Heart of sustainability

The very heart of sustainability, it appears, is lodged in this concept. It echoes in the words of Jim Enote's Zuni grandmother, and is exemplified by a project at Badrinath, the major Hindu pilgrimage site in the India Himalaya. Approximately 450,000 pilgrims journey to this holy shrine each year, arriving on roads built in the early 1960s, tramping through once thick forests, and destroying the landscape by pure numbers alone.

In 1993 – at the suggestion of scientists from the G.B. Pant Institute of Himalayan Environment and Development – the chief priest at Badrinath agreed to use his religious authority to help restore the site. In a special ceremony, he blessed tree seedlings supplied by the scientists and distributed them to pilgrims and local people to plant as an act of devotion.

He also described how, according to legend, an ancient sage named Bhagiratha prayed to Ganga, the goddess of the sacred Ganges river, to come down from Heaven. Not wanting to leave her comfortable abode, she protested that the force of her fall would shatter the Earth. Shiva, one of the three forms of the supreme deity, offered to break her descent with his long hair. Noting that Hindu texts regard the trees of the Himalaya as 'Shiva's hair', and remembering that each summer the Ganges does indeed 'fall from heaven' in the form of monsoon rains, the local community recognized that if the Himalayan forests are stripped away, the Earth shatters with landslides and floods.

The priest and the scientists combined to replant trees. The programme has thrived. Plans are under way to re-establish the ancient sacred forest of the region, and the approach has also been extended to a Sikh pilgrimage centre. Could similar models work in other parts of the world?

Mountains can provide us with a path to the discovery of important common ground. People revere mountains in many different ways – as centres of the universe, abodes of the gods, sources of life, tombs of the dead, places of inspiration, glorious opportunities for recreation, and mysterious vessels of knowledge and power. But we all feel reverence and awe when we glimpse a snow-capped peak, perhaps with the sun's first fleck of brilliance turning a forest to gold.

Mountaineers and merchants, poets and philosophers, farmers, shepherds, bamboo haulers, and adventure travellers all come together on that mountain path, discovering a universal journey that transcends language, profession, education and economics. Peoples on all continents have looked to their own towering peaks – and the sky beyond – for renewal and inspiration.

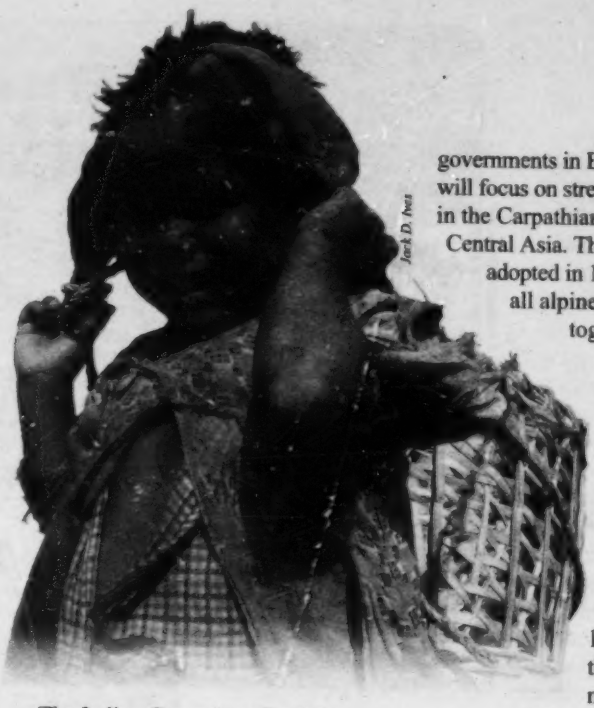
And so it is that we all meet on a mountain path this year with hope. Chinese writer Lu Xun's adapted poem captures the special spirit of the International Year of Mountains 2002 like this:

'Hope is like a path on the mountainside.
At first there is no path.
But then there are people passing that way,
And then there is a path.'

Catherine Nixon Cooke is the President and CEO of the Mountain Institute, based in Washington, DC.

ON TOP OF **THE ISSUE**

MARK COLLINS and **ANDREI IATSENIA** describe UNEP's work in the International Year of Mountains



Jack D. Ives

The International Year of Mountains (IYM) promises to yield two vital outcomes: a heightened awareness around the world of the dangers facing mountain ecosystems and communities, and a detailed plan setting out policies and actions that governments and other stakeholders can take to tackle these problems. UNEP has established a secretariat in Geneva to coordinate its IYM activities. A wide range of assessment, communications, policy development and national activities is in train to ensure that the year achieves concrete results.

IYM will be full of opportunities for dialogue and discussion; a series of mountain workshops is already under way. Barriers and best practices in sustainable mountain development are being discussed and analysed, highlighting promising new approaches, and shaping options for the future. The high point will be the Global Mountain Summit, to be held in Bishkek, Kyrgyzstan from 29 October-2 November (www.globalmountainsummit.org). UNEP is providing technical support to the Government of Kyrgyzstan in the run-up to the conference. Ten issues papers on mountains, currently undergoing e-consultation through the Mountain Forum, a global network of experts (www.mtnforum.org), will form a foundation for the Bishkek Mountain Platform, a policy framework for mountainous countries to adopt at the Summit and implement at home.

'...there is a tug of war between cultural education and the present academic education...'

Robert, Mountain Voices

The Italian Committee for IYM has been active in organizing a High Summit Videoconference, broadcast simultaneously in North America, South America, Europe, Asia and Africa. With support from the Italian Government and Cisco Systems, experts, policy-makers, researchers and scholars from mountainous areas discussed all aspects of mountain ecology and culture and prepared reports on the future development of mountain areas. UNEP took responsibility for the African hub of the videoconference (www.highsummit.org), drawing in participants from all parts of the continent.

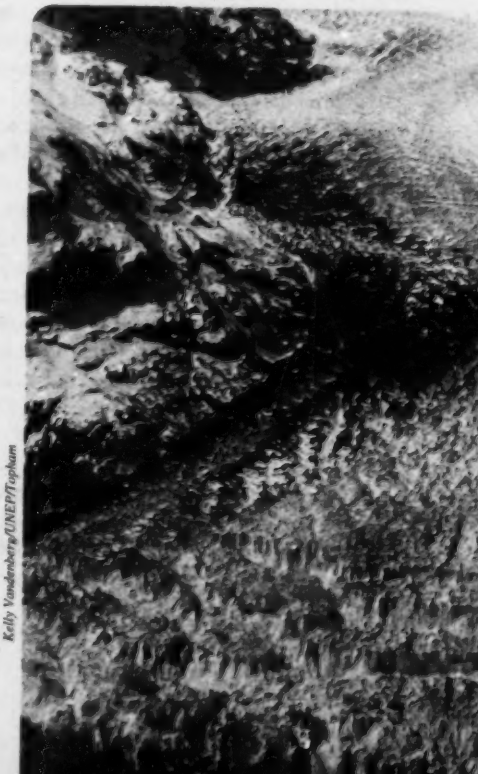
Well-being and profits

Many human communities and industries depend upon the health of mountains for their well-being and profits. UNEP-WCMC has begun to coordinate an assessment of the ecological condition of mountain systems, to be known as Mountain Watch; it will be devised and implemented in developing regions through a GEF project. A framework World Map of Mountains and their Forests has already been published, and will eventually be elaborated into a World Atlas of Mountains.

Many countries have proposed regional initiatives to promote the protection and sustainable management of major transboundary mountain ranges. UNEP's European Mountain Initiative, a response to requests from governments in Europe and Central Asia, will focus on strengthening cooperation in the Carpathians, Caucasus and Central Asia. The Alpine Convention, adopted in 1991, brought together all alpine countries to work together on mountain development and protection. From 26-29 June alpine experts will convene with counterparts from the Carpathians, Caucasus and Himalayas in Berchtesgaden, Germany to identify lessons learned from the Alpine Process that might prove relevant for other mountain ranges.

UNEP's Regional Office for Europe and WWF's Danube Carpathian Programme Office are helping Ukraine to lead intergovernmental consultations. The focus is the WWF-Carpathian Ecoregion Initiative, a partnership of over 50 organizations promoting the Carpathian Biodiversity Network of mountain protected areas and strengthening the participation of local communities, the private sector and NGOs.

A draft Central Asian Mountain Charter, initiated by the Government of



Kelly Vandenberg/UNEP/Topham

Kyrgyzstan, is the subject of inter-ministerial consultations among Central Asian Countries. Its signing is planned as a side event of the Bishkek Global Mountain Summit. The Caucasian countries are also developing a legal instrument for protecting the Caucasian Mountain Ecosystem.

Friends of the Mountains, a group of Members of the European Parliament, sponsored a UNEP poster display – From the Summits to the Seas – opened in the Parliament in Brussels by Executive Director Klaus Töpfer on 27 February. The posters will be displayed at international meetings throughout 2002.

UNEP and the International Centre for Integrated Mountain Development (ICIMOD) have forged a partnership to study the phenomenon of glacial lake outburst floods (GLOFs) in Nepal and Bhutan. The phenomenon has been brought about by climate change causing the melting of glaciers and the forming of glacial lakes behind moraines. The moraine dams are comparatively weak and can breach suddenly, causing catastrophic flooding downstream.

The UNEP/ICIMOD project has prepared an inventory of Nepal and Bhutan's glaciers and glacial lakes and highlighted those where GLOF events are likely to occur and cause serious damage to life and property. It suggested that 20 Nepalese and 24 Bhutanese glacial lakes were potentially dangerous. The project is also providing advice on methods of recognizing potential dangers and immediate threats, and on developing early warning systems, to the Governments of the two countries. It is helping to strengthen the capability of their national institutions to address GLOF issues.

Surendra Shrestha

Building capacity

Implementing the strategies and plans arising from the Year will require enhanced capacity in many countries. UNEP-WCMC is helping in the Annapurna Conservation Area, the largest protected area in Nepal, with collaboration from the Darwin Initiative (United Kingdom) and the King Mahendra Trust. This will become a pilot site for developing tools, training staff in assessing ecological and cultural values of mountain commons, and monitoring impacts of tourism. Local communities will be heavily involved – and the lessons learned will be transferable to other mountain parks.

Restoring mountain ecosystems, improving mountain people's livelihoods, managing watersheds – and other aspects of environmental stewardship in mountain areas – will require long-term local and regional cooperative programmes between communities, private and public stakeholder associations, policy-makers and development financiers. How might this be organized?

UNEP's approach is to enhance participation by all stakeholders, building on existing models to achieve action through organizations from the global level to the grassroots. These emerging partnerships and stakeholder dialogues will need a common, easily accessible networking point if they are to endure. UNEP is discussing with partners the possibility of facilitating a Mountain Commons Partnership (MCP) to serve as a hub and clearing-house for IYM follow-up action programmes at the national, regional and, if appropriate, global level.

Cooperative programmes

Working closely with the Food and Agriculture Organization of the United Nations – the lead agency for IYM and Task Manager of Chapter 13 of Agenda 21 – the MCP could facilitate new cooperative programmes with environmental and development agencies, civil society organizations (parliamentarians, NGOs, community-based organizations) and the private sector. It would measure its success by monitoring progress in establishing specific regional mountain commons action programmes and partnerships, by transferring economic and legal framework tools, and by building a participative programme designed by an international advisory board.

Klaus Töpfer, Executive Director of UNEP, has called IYM 'a unique opportunity to celebrate the natural environment, cultures and peoples of the world's mountain regions, providing us with a tool for raising the political profile of sustainable mountain development'. Through its IYM activities UNEP is engaging with partners worldwide to improve the condition and prospects for mountain ecosystems and peoples. In the longer term, the success of IYM will be judged on concrete outcomes. UNEP and its partners are formulating the concept of a Global Programme of Action for Mountains as one way to keep mountains on the agenda long after the Year is over ■

Mark Collins is Director, UNEP World Conservation Monitoring Centre and Andrei Iatsenia is Mountain Programme Coordinator, UNEP Regional Office for Europe.

UNEP's work during the International Year of Mountains is generously supported by FAO (as lead agency), the GEF, the Swiss Agency for Development and Cooperation, the Aga Khan Development Network, United Nations University, UNESCO, United Nations Development Programme, the World Bank, the Mountain Forum and the Governments of Kyrgyzstan, Austria, Italy, United Kingdom and Germany.

PEAK CONDITION

EDMUND HILLARY

Tenzing and I emerged on the summit of the world. It was a great moment!

I saw snow for the first time when I was 16 years old, and travelled with a school winter party to Tongariro, New Zealand's first national park. I skied and climbed in the mountains for ten days and it absolutely transformed my life. I loved the mountains and their beauty, and revelled in the sense of challenge.

From then on I spent every day I could amongst the great peaks. My skill increased, and I was soon making the first ascent of ridges and summits. I climbed extensively in the New Zealand Alps and in the European Alps before carrying on to the mighty summits of the Himalayas. Always I felt a deep warmth for the sunrises and sunsets on the beautiful mountains. Snug in my sleeping bag, I would peer out of the tent door until the sun sank in a crimson light over the Himalayan ridges.

In 1953 I was invited to join the British Mount Everest expedition. We struggled up the innumerable crevasses and icewalls of the icefall, pushed our way up the Western Cwm and hacked a stairway up the steep Lhotse face. We established our final depot at nearly 8,000 metres on the cold and windy South Col, and then pushed on for the summit. Sherpa Tenzing and I spent a cold and uncomfortable night in our last camp high on the Southeast ridge. Next day we battled our way up the soft snow to the South Summit, and along the narrow summit ridge. Then I hacked a line of steps in the firm snow with my iceaxe, climbed the Hillary step, and Tenzing and I emerged on the summit of the world. It was a great moment!

I had many further adventures – driving tractors to the South Pole, jet boating up the mighty Ganges river from the Bay of Bengal to the Himalayas, and landing in a small ski plane at the North Pole. But increasingly my attention was being turned to the welfare of my Sherpa friends. Their life was tough and remote, and they lacked all educational and medical facilities. I did not feel sorry for them – far from it – as they did not feel sorry for themselves, but I greatly admired their toughness and sense of humour.

They realized that their main need was for education, and that is what they asked for. We built our first school in Khumjung village in the shade of the spectacular Amadablam and Kangtega, which my team later climbed. This became a normal procedure – climbing a mountain and building a school. Now we and the Sherpas have built more than 30 schools. Mainly we aim to carry out what local people want – as much of it as we can tackle, anyway. We don't want to interfere, and we certainly don't dictate.

Initially all our supplies had to be carried by porters for 17 days over steep hillsides from Kathmandu. So we purchased a sloping block of land in the village of Lukla for an airfield. Sherpas hacked the slope into shape with spades and mattocks and pounded the surface into reasonable firmness so that the first Pilatus Porter could make an effective landing. All the supplies for building a hospital were then flown in.

Lukla quickly became the busiest mountain airport in Nepal. Tourism has become a major business for the local people. It has had a substantial effect on their lives and has certainly improved their economy. I do not believe the impact on the Sherpa culture has been too disastrous; they still retain their strong ties to both culture and Buddhism. If anything, I think their traditional beliefs are getting stronger.

Environmental matters are the most important things we have to deal with. The vast influx of tourists has had a severe impact on the forests. In the 1970s trekkers nearly denuded the area. Many years ago we started replanting local varieties of trees and, though they were slow to develop, growth has now spurted ahead and much of the forest has been renewed. Hopefully the forests will return to how they were when I first saw them 50 years ago ■

Sir Edmund Hillary is Chairman of Himalayan Trust.

Jack D. Ives

Jack D. Ives

Michael Wehnitski/UNEP/Topham

Bill O'Connor/Still Pictures

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